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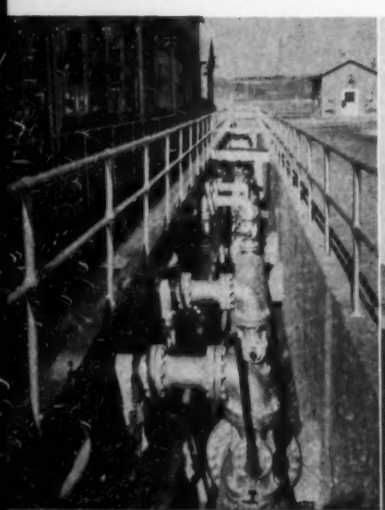
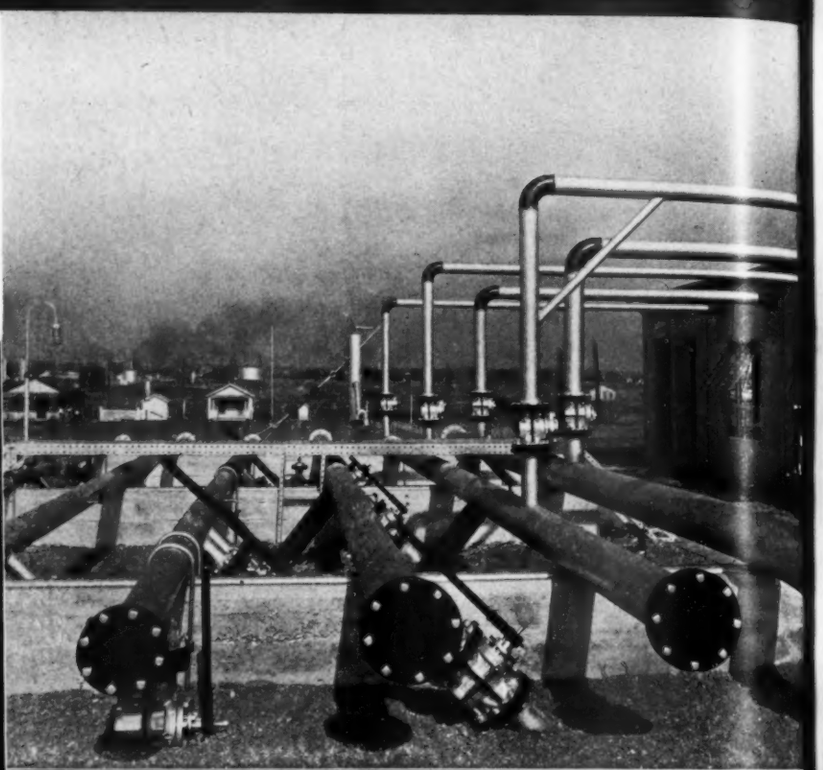


Discharge and intake manifold on a 10,000 h.p. compressor station, Liberal, Kansas, equipped with Nordstrom Valves

Nordstrom iron valves on tanks handling sour crude



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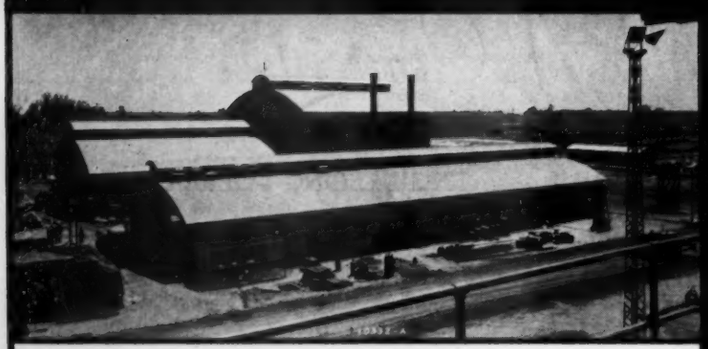
OIL INDUSTRY BUILDS BIGGER *with* BUTLER STEEL BUILDINGS



This year, sales of Butler Steel Buildings to the oil industry are the largest in years. Butler engineers are tailor-making them to fit almost every outpost sheltering purpose for which there is a need in the oil field, pipe line, refinery and marketing branches of the industry. Installations range from the large refinery re-run pump houses shown above, to the small pipe line station shown below. More adaptable and more economical than ever before, Butler Steel Buildings are increasingly recognized as the standard of oil industry construction.

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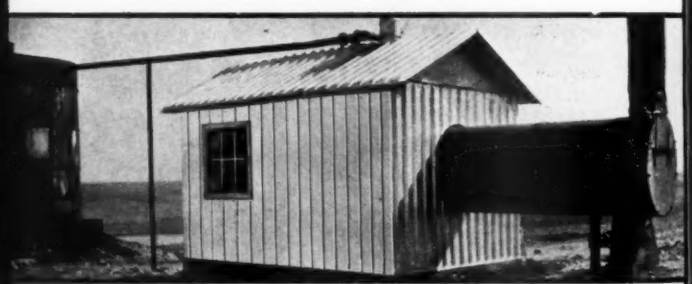
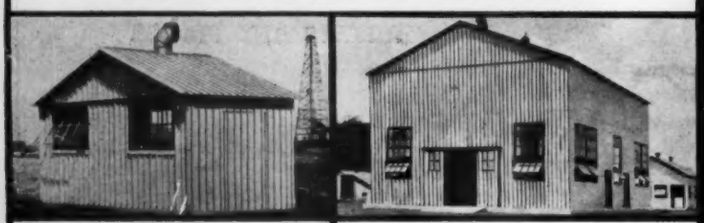
BUTLER OIL WELL POWER HOUSE

TOP—BUTLER REFINERY RE-RUN HOUSES
ABOVE—BUTLER OIL FIELD SUPPLY DEPOT



BUTLER OIL FIELD BOILER HOUSE



BUTLER
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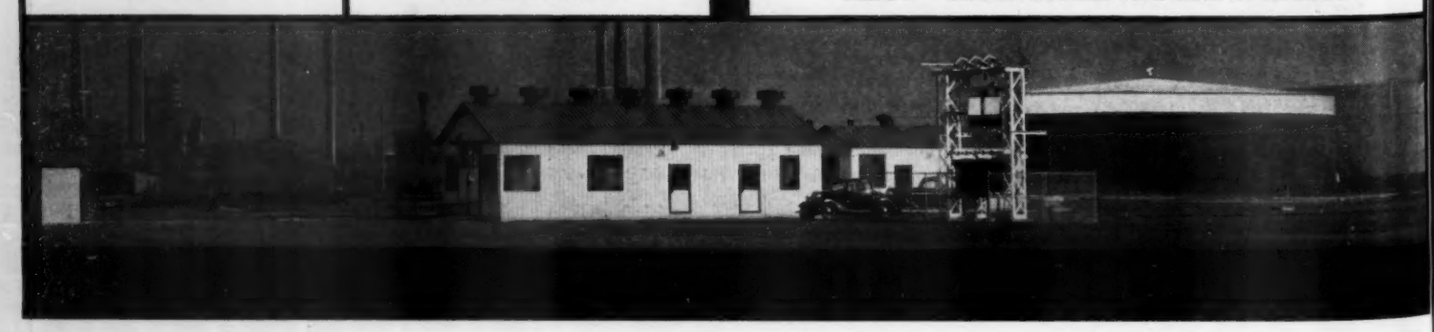
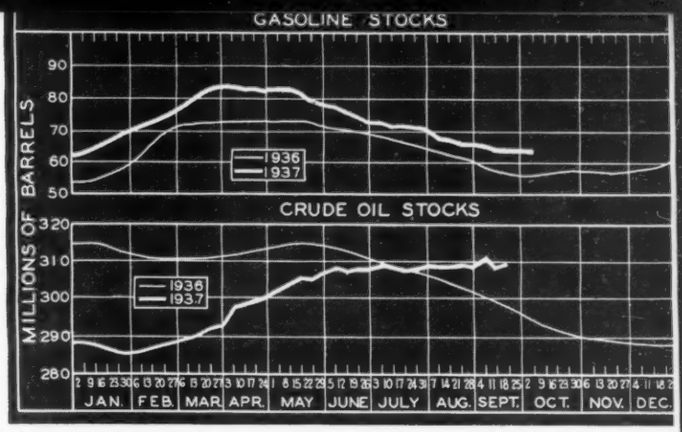
BUTLER GASOLINE PIPE LINE
COMPRESSOR HOUSE

ABOVE—BUTLER OIL FIELD OFFICE AND GARAGE
BELOW—GROUP BUTLER PIPE LINE BUILDINGS





Production Down 21,625 Bbls.

OKLAHOMA and Kansas were responsible for the 21,625-barrel decrease in the production of crude in the United States in the past week, Oklahoma producers having cut production 19,275 barrels per day and Kansas operators 8,525 barrels per day. Production in Texas was lowered 2,550 barrels, but California showed a small increase. Oklahoma's production was 18,825 barrels under the daily allowable fixed by the Corporation Comission, and that of Kansas 9,300 barrels below the Kansas state allowable. Texas exceeded its allowable by 81,203 barrels per day, and California production was 29,750 barrels above the recommended figure of the Central Committee of California Oil Producers, and it is feared by the conservative element of California producers that the state's production will average above 700,000 barrels a day in October.

CRUDE PRODUCTION *3,645,476 barrels daily average—down 21,625 barrels.*

CRUDE STOCKS *309,405,000 barrels as of September 18—up 351,000 barrels.*

GASOLINE STOCKS *65,266,000 barrels as of September 18—down 354,000 barrels.*

REFINERY RUNS *3,400,000 barrels daily average past week—down 55,000.*

Humble Oil & Refining Co., followed by Sun Oil Co. and the Texas Co., started purchasing crude oil in Texas on a 100-per cent tank table basis in the past week. Other companies are expected to follow, and if they do all Texas producers will be credited with 1 per cent more oil than heretofore. If generally observed in Texas it will increase the value of the production in that state about $15,000 per day without changing the price per barrel.

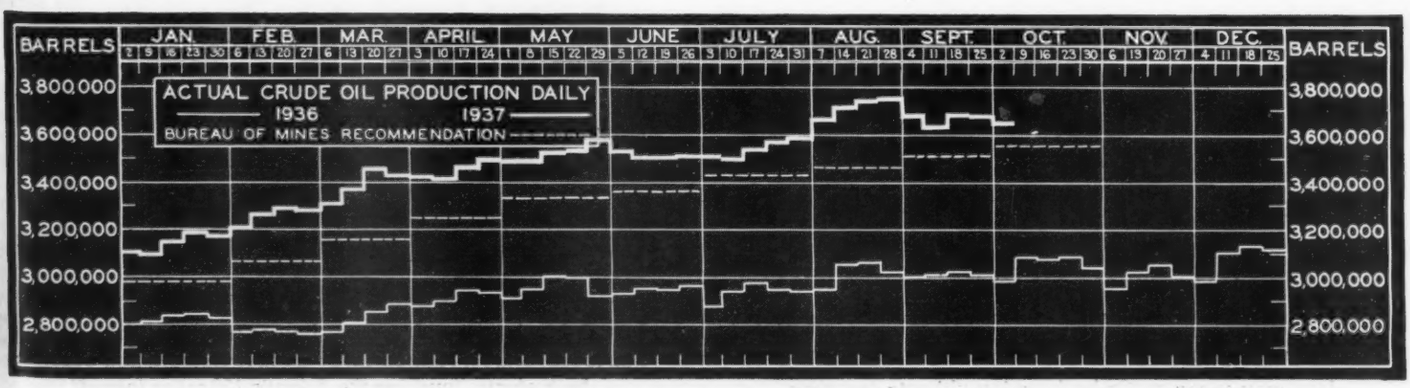
The seasonal falling off in demand for gasoline is reflected in lower tank-car prices in some areas and an easier market in all. The decreasing consumption is most marked in the low-octane material, which thousands of motorists used throughout the hot summer months, but which they now are abandoning for more volatile material. Many refiners are curtailing their operations in order to help in bringing gasoline supplies more nearly in balance with the diminishing demand. Inquiries for heating oils are increasing, and in some instances jobbers are reported to be having difficulty in finding material to meet their needs in the spot market. With refiners now making motor fuel for cold-weather conditions natural gasoline stocks are being reduced rapidly. Manufacturers of natural gasoline predict 1937 business will exceed that of 1936, which broke all records.

The largest new well of the past week was brought in in Fisher County, in the Central Texas district. The lowest estimate of its potentiality was 13,000 bbls. a day, based on a five-hour preliminary test. A deeper pay was discovered in the Lance Creek field in Wyoming by a test that made an initial production of 100 barrels per hour. The Clay City pool in Illinois is given promise of a 5- or 6-mile extension, and new pools were opened in Oklahoma and Kansas.

Daily Average Production for Week

	Oct. 2 1937	Bur. Mines Oct. est.	Oct. state allowables	Sept. 25 1937
Oklahoma City	141,750	.....	.....	147,150
Fitts	74,325	.....	.....	79,725
Remainder of State	365,100	.....	.....	373,575
Total Oklahoma	581,175	629,200	600,000	600,450
East Texas	483,200	.....	.....	482,000
West Texas	220,850	.....	.....	224,497
North Central Texas	107,498	.....	.....	106,850
Texas Panhandle	79,950	.....	.....	82,897
East Central Texas	116,549	.....	.....	115,448
Gulf Coast—Texas	364,347	.....	.....	365,000
Southwest Texas	125,598	.....	.....	123,850
Total Texas	1,497,992	1,430,300	1,416,789	1,500,542
North Louisiana	89,660	.....	.....	88,845
Gulf Coast—Louisiana	174,650	.....	.....	175,147
Total Louisiana	264,310	254,600	266,700	263,992
California	689,750	660,000	660,000	687,250
Kansas	184,500	199,900	193,800	193,025
Arkansas	38,700	36,000	.....	38,685
Eastern fields	137,600	128,800	.....	137,700
Michigan	54,619	43,500	.....	53,807
New Mexico	114,560	106,400	104,000	114,540
Rocky Mountain area	82,270	79,400	.....	77,110
Total United States	3,645,476	3,568,100	.....	3,667,101

Decrease of 21,625 bbls. daily.



SPARKS FROM THE NEWS

A HEALTHY YOUNGSTER

The seventh birthday of the East Texas field, which occurred on October 2, saw the lusty young field on the way towards its second billion barrels. Its total production up to the close of 1937 should be close to 1,124,000,000 bbls.

RUNNER-UP

Barton County, registering one discovery and one pool extension the past week, has been advancing at a fast clip among Kansas oil counties in recent months, and now rates second only to Russell County in drilling activity.

OPPORTUNITY

Secretary Ickes' address before the I.P.A.A. at Houston is to be broadcast over a coast-to-coast network. Chance to say a nation-wide good word for a maligned industry.

WANT DRY WELLS

Producing companies foresee the need to handle increasing quantities of salt water accompanying the oil. At present nearly one-third of the total liquid brought to the surface in the oil fields is water. One-third of the lifting cost is used up in producing a worse-than-worthless commodity.

SAME GOAT

Governor Allred and Texas legislators prophesy the federal government will increase taxes on crude oil and its products to offset the Gargantuan spending program. The Texans propose to beat the federal government in levying taxes but either program of increased taxation will be aimed at plucking the oil man.

EXPENSIVE

Notary fees based upon a charge of 25 cents for each affidavit to accompany the well survey now going on in the East Texas field will total nearly $6,000. Salaries for field and office workers will swell this sum to well over $100,000. It costs money to be regulated.

ARBITRATOR NEEDED

Fitts pool operators should draw upon the experience of Hobbs field well owners and appoint an umpire quickly to arbitrate the various opinions concerning future Fitts field operation practices. The Oklahoma Conservation officer will issue the necessary orders when the operators agree and delays may prove costly by lowering ultimate recovery.

GOOD CUSTOMERS

Most motorists, it is reported, never bought a new car. There were 4,016,000 new cars sold in 1936, but sales of used cars totaled 6,590,000. And used cars generally use more gasoline and oil.

"SETTLED" PRODUCTION

Bradford's second sand oil boom did not last long. The "discovery" well started at 1,200 bbls. a day and the owners of the second well had to be content with 4 bbls. of oil and 50,000 feet of gas per day.

ULTIMATE RECOVERY

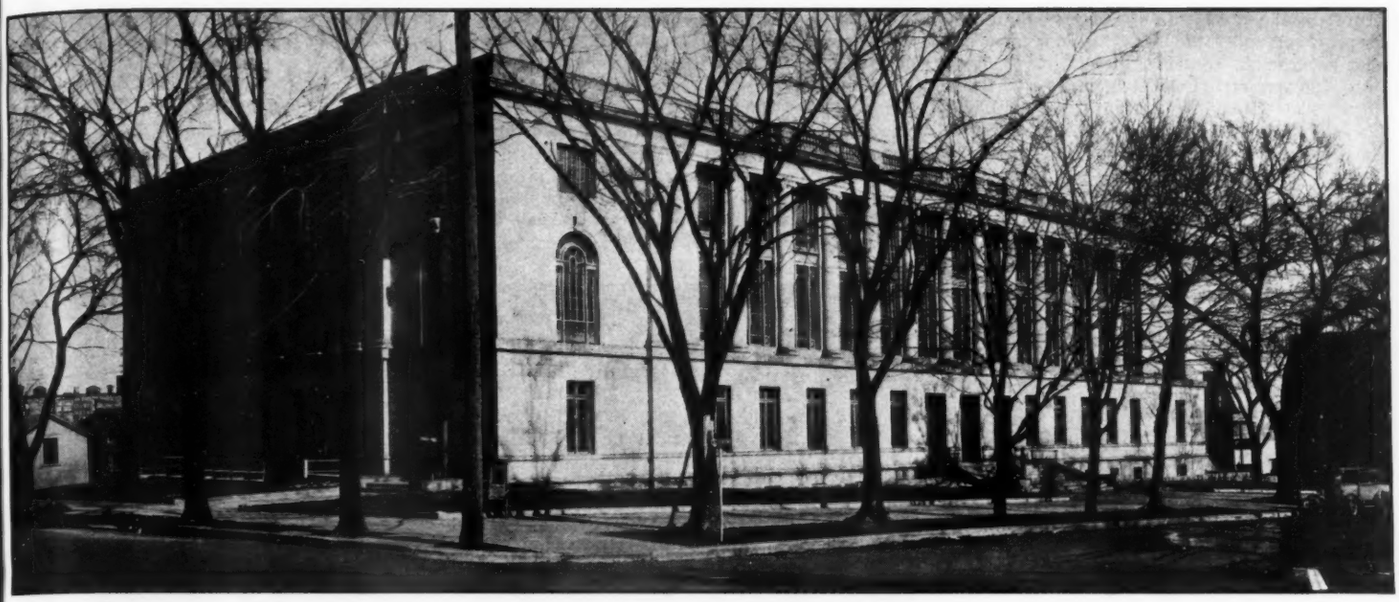
The industry has done much to increase the ultimate recovery of oil but has been able to do little to bring about the ultimate recovery of commensurate profits.

IMMUTABLE

The Tulsa ordinance banning drilling within the city limits is a "hardship upon plaintiffs that cannot be complained of legally," a Tulsa district judge observed in refusing a writ of mandamus to force disannexation of a tract for drilling purposes.

NEW WATERWAY OPEN TO OIL

Pure Oil Co.'s "Wiley L. Moore" barges motor fuel from Savannah to Augusta for reshipment by truck to Georgia and Carolina bulk plants, "pushing the Atlantic 130 miles inland"



Federal court house at Madison, Wisconsin

THE JURY

Frank Brechler, 52, Marathon, retired.
C. Noonan, 30, Union Center, garageman.
Hiram Nelson, 63, Stoughton, retired.
Philip Hanson, 50, Blue River, farmer.
Joseph Kalscheur, 35, Klevenville, carpenter.
S. W. Grenzow, 55, Monticello, mechanic.
Harry Fullert, 42, Madison, farmer.
Sam McGaw, 53, Madison, farmer.
E. M. Slattery, 50, Rudolph, farmer.
Neal Larson, 55, Deerfield, farmer.
Charles Burnham, Lone Rock, farmer.
James Mullen, 53, Springgreen, realtor.

ALTERNATES

Clifford Huber, 41, Brooks, owner fox farm.
Earl Hibbard, Knowlton, farmer.

Clash On N.R.A. at Trial Opening

By C. O. WILLSON

MADISON, Wis., Oct. 5.—The question of what part the oil code under the National Recovery Act is to play in the trial of defendants which opened in Federal District Court here Monday was precipitated Tuesday morning at the opening of court. It has been known for some time that the acts of the industry, including the defendants, during the NRA would be an important factor in the case.

Action of the government counsel this morning indicated they will oppose every effort made by the defendants to explain the workings of the industry during the NRA period, claiming the issues involved in the indictments center largely around an alleged conspiracy to control prices that took place after the NRA was declared unconstitutional.

When court opened this morning and before the jury selected yesterday was brought into the courtroom, government attorneys asked the court to rule on the issues to be involved in the trial. The attorneys explained they had reason to believe the defense intended to introduce in their opening statement to the jury and later in evidence certain acts which the government alleges were illegal were actually approved by the government under the NRA.

The government attorneys termed this an effort to give their acts a legal background and maintained they should not be presented to the jury in any form. They also contended the industry had never received governmental approval of these acts and had in fact never asked for it knowing it would not be given. They further stated the defendants would attempt to show something as approval which was not approval as provided under the NRA act.

The action obviously is an attempt on the part of the government to have the scope of the trial set at this time by preliminary court rulings before any opening statement is made to the jury with the hope of defining the issues and restricting the evidence to be presented. The government emphasized its position that the issues are confined to those matters having direct bearing on the conspiracy during the post-NRA period in which it is alleged to have taken place. The reasonableness of the action is not a defense, they said.

Col. William J. Donovan, chief counsel of the defense, said that he "had never heard so novel a statement and request in all his legal activities." He contended the government, in effect, was trying to force the defense to present its case before the trial actually opened.

He said the legal matters raised by the government should be argued and passed upon as they came up in the trial of the case. It was apparent defendants will continue firm in this contention as constituting a highly important position in the trial.

Judge Patrick T. Stone said the matter of whether or not the oil industry had written ap-

DIRECTS DEFENSE—Col. W. J. Donovan

proval of the president or secretary of interior as provided under the NRA act was important. The government contends the industry did not have this approval. Colonel Donovan said the industry had the approval as provided for by the law but denied it was necessary that this approval be presented at this time.

The court finally ruled the government should make its opening statement to the jury and a final ruling would be made in the matter before the defense submitted its statement.

In their opening statement government attorneys explained to the jury the evidence of conspiracy on which the case rests. They outlined a gasoline buying program in 1935 and 1936 during which the defendant companies purchased gasoline from a group of small East Texas and other Mid-Continent refiners.

It was explained the government will show this buying program was carried on for the purpose of controlling tankcar prices on which contracts between refiners and jobbers are based throughout 10 states in the Middle West, including Wisconsin.

The attorneys said if the conspiracy had not been stopped the defendant companies would have forced 4,000 oil jobbers out of business. Charles E. Arnott, vice president of Socony-Vacuum Oil Co., Inc., was referred to as the master mind in the conspiracy in charge of the buying program.

Speedy Selection of Jury

Moving with unexpected speed the first day in the trial saw the selection of a jury. It had been expected that several days might be required in the selection of jury in the case involving an alleged violation of the criminal and civil provisions of the Sherman antitrust act by the defendants during 1935 and 1936.

The jury of 12 and two alternates will be locked up during the duration of the trial. It is said that isolating a jury in this manner is without precedent in federal cases involving misdemeanor charges.

Judge Patrick T. Stone, appointed to his present position by President Roosevelt, announced his plan in regard to the jury at the opening of court. He said it was necessary because published statements regarding the case had been prejudicial to both the government and the defendants. He explained that neither the attorneys for the government or the defense had requested that the action be taken.

Col. William J. Donovan, chief counsel for the defendants, objected on the grounds that it would work against the interests of the defendants because jurors might become resentful due to their long confinement. The point was stressed that in some cases prospective jurors would not be able to serve because they could not keep in touch with their business as is possible when the usual rules of handling a jury are observed.

"When we reach the end of this trial I want to feel in my own mind and conscience that the jury has been fair and has not been influenced by anything outside the court room," Judge Stone said in overruling the objection to the jury plan. Under his ruling the jury cannot return to their homes over the week-ends or communicate with anyone except in the presence of an officer of the court.

Jury Isolated

All prospective jurors were asked whether they were in a position to be isolated from their normal pursuits. In this connection Judge Stone indicated that the trial would require seven or eight weeks. Opinions of attorneys have pointed to a minimum of three months.

The manner of examining the jurors to determine their qualifications for jury service was also unusual and accounts for the quick selection. Judge Stone announced that the defendants would be allowed 10 peremptory challenges and the government six. Thirty-six men were selected from the panel and the judge questioned them regarding their qualifications.

Neither the government nor defense attorneys examined the jurors. Several were dropped for cause. Twelve jurors were selected and later two alternates were chosen. The 14 selected include seven farmers, three skilled laborers, a realtor, one merchant and two who are retired. The questioning of the jurors showed that most of them had grammar school or high school educational training, lived at points some distance from Madison and knew nothing about the issues involved in the trial.

A surprisingly large number of the petit jurors had had at one time some connection with the jobbing or retail ends of the oil business, some were dropped for cause and the peremptory challenges eliminated the rest in the final selection of the jury.

The court room was crowded when the case was called. Fifty defendants, 60 attorneys, 30 newspaper and trade journal reporters and numerous court attaches took all the available space in the court room which is about 100 by 40 feet. When more than 100 petit jurors were brought in visitors and witnesses had to leave.

The trial at the start at least will receive wide publicity in daily publications. The Associated Press and United Press each has three representatives here. Special staff representation includes two New York newspapers, two Chicago papers and several others from Wisconsin and the oil states of the Southwest.

Judge Stone explained that the defendants, with the approval of the court, could waive their right to be present during the trial. It is understood that all the defendants, except in the case of illness or some other unforeseen development, expect to be in daily attendance at the trial.

Reports as to the elaborate facilities provided for defendants and payments said to have been paid for housing accommodations are highly exaggerated. Limited hotel facilities forced some companies to lease homes in the residential sections. Several will maintain skeleton office organizations and keep in daily touch with main offices.

Renewals of the motions in behalf of B. L. Majewski, general sales manager of the Deep Rock Oil Corp., were denied Monday morning. Last week the court refused to grant his plea for determination of his immunity plea as a grand jury witness in advance of the trial or to order that he be brought to trial with the other defendants. Colonel Donovan Monday offered to withdraw the plea in bar and again asked that Mr. Majewski be brought to trial at this time.

William P. Crawford, of Superior, Wis., who as special attorney, is in charge of the government's case, declared the government was not ready to try Mr. Majewski at this time.

Judge Stone denied the motion and Colonel Donovan then reinstated the immunity plea. Mr. Majewski, who was prominent in the NRA oil code days, may be called as witness by the government.

GOVERNMENT COUNSEL—J. H. Lewin, Hammond E. Chaffetz and Grant Kelleher

Additional Witnesses

The following additional persons are included in the list of government witnesses to be called: J. C. Corner, Pittsburgh, Pa.; Harry Fee, Waterloo, Iowa; Carl O. Beroth, Chicago, Ill.; M. B. Rhodes, F.B.I., U. S. department of justice; Ross Campbell, Detroit, Mich.; Herbert F. Davis, Sullivan, Ind.; Otto S. Staack, Blackstone Hotel, Chicago; A. C. Breuch, Madison, Wis.; Ross Smith, Chicago; R. E. A. Boyle, F.B.I., U. S. department of justice; L. F. Henry, Jamestown, N. D.; John Cox, Ann Arbor, Mich.; J. H. Middleton, Bowling Green, Mo.; H. C. Hale, Madison, Wis.; Roy Fisher, Detroit, Mich.; Oscar L. Peterson, Chicago; A. H. Blackall, Chicago; R. E. Andrew, Portage, Wis.; I. B. Dworman, Detroit, Mich.; J. W. Going, F.B.I., U. S. department of justice; Elmer H. Pedley, Kenosha, Wis.; Elmer Wahls, Chenoa, Ill.; Sam H. Trainor, Wausau, Wis.; Claude E. Lewis, Hillsdale, Mich.; J. H. Crowley, Beloit, Wis.; P. J. Schroeder, Minneapolis, Minn.; E. N. Johnson, F.B.I., U. S. department of justice; A. C. L. Peterson, Grantsburg, Wis.; Neil Staebler, Ann Arbor, Mich.; Charles J. Hallman, Minneapolis, Minn.; J. Marshall Thompson, De Soto, Mo.; W. J. Miller, F.B.I., U. S. department of justice; H. E. Miller, Festus, Mo.; J. P. Saunders, St. Louis, Mo.; J. W. Cameron, F.B.I., U. S. department of justice; William J O'Brien, Superior, Wis.; C. G. Skartvedt, Rapid City, S. D.; Walter Wingrove, Sheboygan, Wis.; C. M. Tyner, F.B.I., U. S. department of justice; A. J. Fiore, Madison, Wis.; G. H. Falder, Rock Island, Ill.; Sam Schneider, Hutchinson, Kans.; Harry Brownell, Sioux Falls, S. D.; R. F. Mullen, F.B.I., U. S. department of justice; and Dale W. Moore, Tulsa.

This completes the list of witnesses whom the government now has reason to believe it will call, but the right is reserved to call additional witnesses.

Barton County Sets Fast Pace in Kansas

By DAL DALRYMPLE

The Barton Arch is paying dividends in oil in Barton County, which has forged to the front as one of the four or five leading petroleum producing counties of Kansas. Indeed, new areas are being opened to development, potentials are soaring and field activity is increasing so rapidly in Barton County that it may be vieing with Rice and Russell counties for No. 1 place before many months pass.

Discoveries of new areas and extensions of older pools have been so frequent in Barton County this year, that at times it has seemed to monopolize the news from Kansas. Some of the strikes have been of little consequence, but several have been of real importance because of extensive areas they have opened and prospective production. These discoveries and extensions far overshadow the numerous wildcat failures recorded in this ever-widening search along the Central Kansas Uplift in Barton County.

There are three major producing districts in Barton County today. First and oldest is the prolific area in the southeastern corner of the county, including the Barton County sector of the Silica field, the Ellinwood and Peter pools, and adjacent areas.

The second major district is that around the important Bloomer field, including the Breford, South Breford and Kraft pools.

The third and newest district rates "major" classification because of its potentiality rather than for its present size. This district is in the north central part of the county, and includes the Ainsworth and Susank districts and the Barton extension of the Trapp field.

Barton is surrounded by oil-producing counties and shares much of its proven area with its neighbors.

Along the east side, the big Silica field straddles the Barton-Rice County line; the Bloomer field has been extended from Barton into first Ellsworth, and then Rice County; and the Breford and South Breford pools are partly in Barton and partly in Ellsworth County. Several other pools are just across the line to the east, wholly in Rice and Ellsworth counties.

The Trapp field, recently extended from Russell into Barton, is the only two-county field on the north side. However, there are several pools just across the line and wholly in Russell County.

On the west side, Barton and Rush counties share the Otis and Albert oil and gas areas, and there are two or three other pools just across the line in Rush.

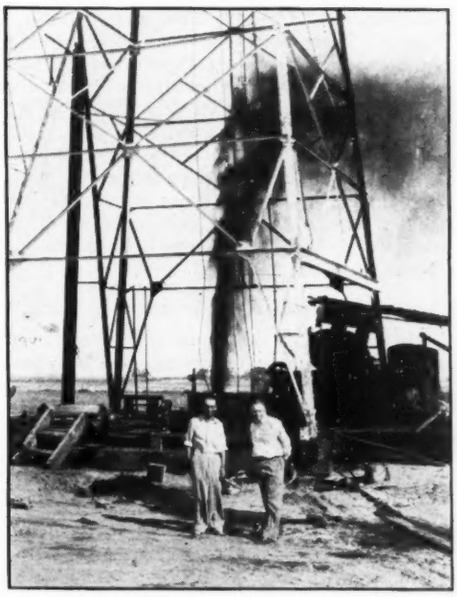
To the southwest and near the Barton line is the Pawnee Rock pool of Pawnee County.

There are no two-county pools on the south side, but the Snider pool is barely across the line in Stafford County, and the Gates and newly opened Sittner pools of Stafford County are less than six miles south of Barton County.

Surrounded by Oil

So a glance at the map will show how Barton County is like an island surrounded by oil country—with oil in adjacent townships of every neighboring county and in several of the outer townships of Barton, but with the expansive central part of the county yet nonproductive. Surrounded as it is by oil country, prospects for production in the interior townships around Great Bend and Hoisington appear bright.

The record of discovery in Barton County to date this year has been remarkable, beginning with an extension of the Peter pool in April and continuing through the latest extension of the Stueder pool, reported in Kansas field news this week.



Oil flows from the Sittner well, a recent Stafford County discovery, 5 miles south of the Barton County line. Harry Feister and O. E. Torry, operators, stand by

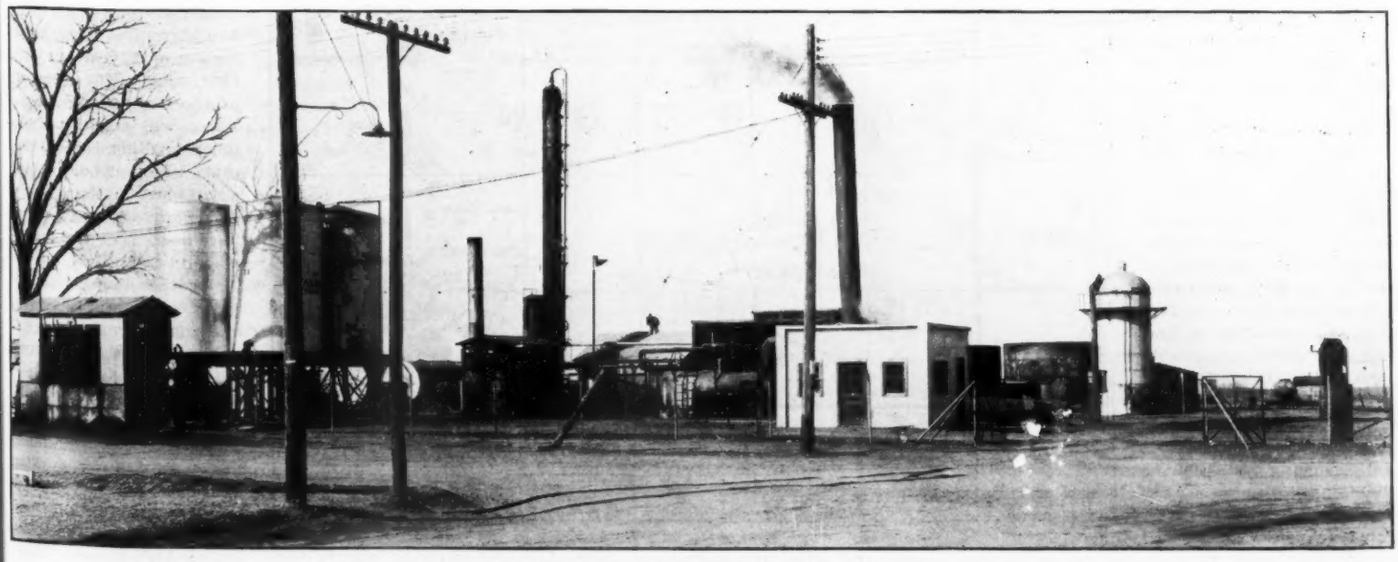
Seven Barton wildcats completed this year have opened new oil areas. The first wildcat strike of the year was in April at Indian Territory Illuminating Oil Co. No. 1 Schrepel, SE SE NE section 26-20-11w, 1 mile northwest of the Peter pool. It had initial potential of 1,451 bbls. of oil. It is classed as a Peter extension.

The next strike was in May when C. L. Price and associates opened the Kraft pool at No. 1 Kraft, SW NW NE section 10-17-11w, west of Breford and northwest of Bloomer. It had initial potential of 1,904 bbls. of oil.

The Kowalsky area, almost midway between the Silica and Ellinwood pools and north of Peter, was opened in May at Stanolind Oil & Gas Co. No. 1 Kowalsky, NW NW NE section 11-20-11w, which had initial potential of 2,260 bbls.

The Stueder area northeast of the Ainsworth pool was discovered in June at Stanolind Oil & Gas Co. No. 1 Stueder, SE SE SW section 21-16-13w, a 675-bbl. well originally.

The East Ellinwood pool was opened in July



The Falcon refinery at Great Bend—Barton County's only oil refinery

when Stanolind Oil & Gas Co. completed No. 1 Schartz, NW cor. section 33-19-11w, near the town of Ellinwood, north of the Ellinwood pool and west of Silica. It made potential of 541 bbls. of oil.

Republic Natural Gas Co. No. 1 Bloomer, NE NW NW section 14-17-11w, opened the South Kraft sector in August. Potential rating was 1,128 bbls.

Latest discovery well completed in the county was Phillips Petroleum Co. No. 1 McClanahan, NE NE SE section 7-16-13w, far south extension of the Trapp field, officially completed this month. Its potential rating is 1,782 bbls.

The New Areas

The number of wells completed in these seven new sectors, their total potentials and allowable production, as given in the September report of the Corporation Commission:

Pool—	Wells	Potential	Allowable
Schrepel	7	9,943	9,645
Kraft	3	5,437	4,972
Kowalsky	5	10,092	7,221
Stueder	3	2,645	6,581
Ellinwood, East	1	541	1,893
Kraft, South	1	1,126	1,513
McClanahan	1	1,782	1,711
Total	21	31,566	33,536

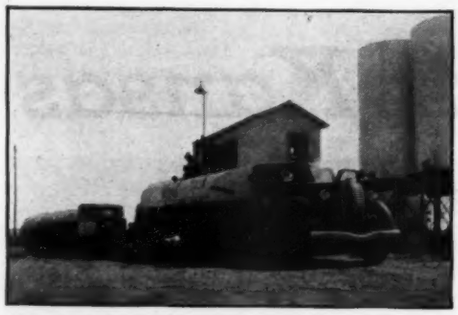
In addition to these distinctly wildcat strikes, numerous extensions of various Barton County pools have been registered this year. In fact, producing limits of few of the pools have been defined and many more extensions are expected, and much more territory will be proven for production before the limitations are determined.

Where will Silica go from here? And Bloomer? And Trapp? For a time it appeared that Silica had stopped development toward the west, but recent extensions in section 35-19-11w and section 2-20-11w have revived activity along the west side of the state's biggest field. It now looks as though the entire area between Silica, Peter and Ellinwood may be proven for production as one great field, a few intermittent dry holes notwithstanding. In Barton County, it seems, as in other Kansas sectors, operators jump right over a dry hole and go on to find new production just beyond it.

Limits of the Bloomer area are yet to be determined. An original Barton discovery, it has crossed into Ellsworth County and just recently was extended into Rice County. It seems inevitable that many more producing wells will be completed, much additional acreage proven before the size of this big field is ascertained.

And so with Trapp. The McClanahan discovery is considered generally as a 1½-mile south extension of Trapp, and it may tie up with the Susank pool to the east. It now seems likely the Barton County portion of the Trapp field eventually will be as large as that portion in Russell County—and that would be a considerable field in any state.

Whence comes Barton County petroleum? Largely from Siliceous lime, the major producing formation of the Central Kansas Uplift. However, several other horizons are productive in the county. The Heizer and Hiss pools are producing from Kansas City limestone; the Beaver, Ehly and Feist areas from sandstone or conglomerate at the base of the Pennsylvanian series; the Albert oil and gas field from a basal Paleozoic sandstone, with the remaining pools finding pay in Siliceous lime. Average depth of production is around 3,300 feet.



Moving Barton County oil by truck to Great Bend

Barton County is at the southern end of the Central Kansas Uplift, popularly known as the Barton Arch. A great majority of the oil fields of western Kansas are producing from structures created by foldings of the uplift. Geologists say there is a big structure, with tremendous petroleum possibilities under Barton, Ellis, Ellsworth, Pawnee, Rice, Russell and other counties that lie along the uplift. This is being proven by results in Barton County and its neighbors.

Great Bend, the county seat, literally is the center of an oil empire. Approximately one-half of the state's daily potential production is in an area within 25 miles surrounding Great Bend. The total potential for Barton County alone today is considerably in excess of that for the entire state a few years ago.

The oil business in Barton County has been confined largely to leasing and production, but there is one refinery at Great Bend. It is the small but modern plant of Falcon Refining Co., organized in 1933. The plant now consists of a straight run still topping unit, with daily topping capacity of 1,000 bbls., and cracking capacity of 500 bbls. It operates on crude oil trucked in from pools within the 25-mile radius of Great Bend. Henry A. Dickason is president, R. W. Morris secretary, and C. S. Dickason and O. H. Shafer directors. Installation of a Dubbs cracking unit at the refinery is planned for the near future.

Barton County has advanced far in the petroleum industry since that long-gone day in 1886 when the first attempt to find oil within the county was started. Local promoters employed a drilling superintendent from Pennsylvania, and derrick was erected in NW quarter section 13-19-13, Great Bend Township, in March, 1886. Hole was drilled to 1,365 feet, artesian salt water came forth and hopes of the promoters expired.

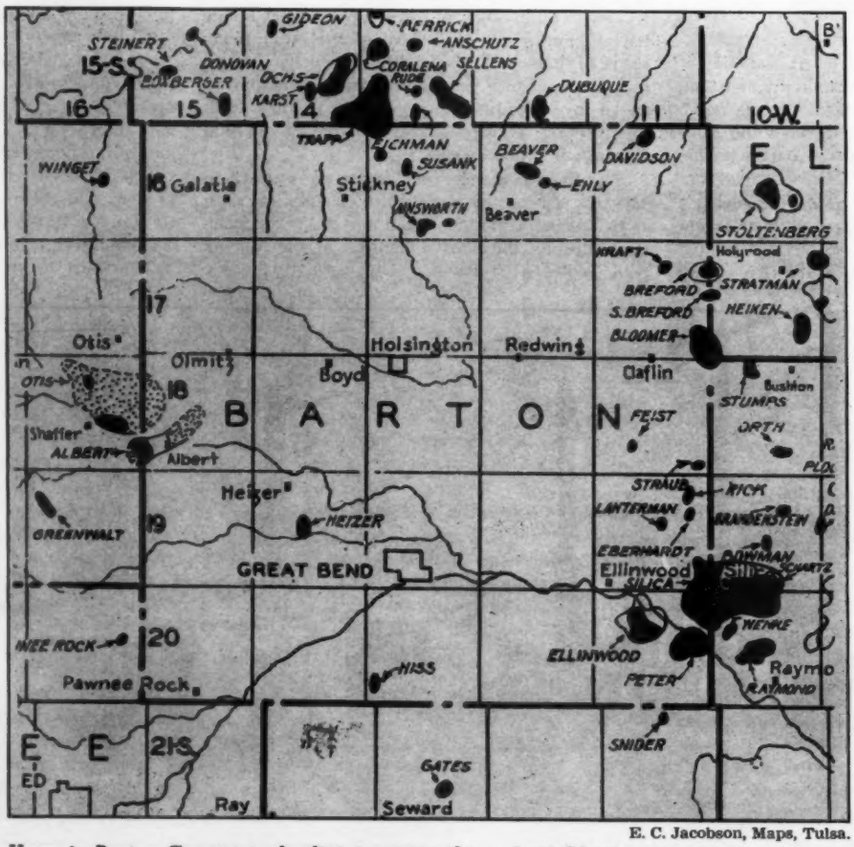
Much of the credit for discovery of oil in Barton County goes to Fred Steckel of Ellinwood. He was convinced oil was under his farm property along the Barton-Rice County line, and he finally imparted some of his confidence to officials of Gypsy Oil Co., now Gulf Petroleum Corp. They drilled No. 1 Fred Steckel, NE NW section 31-19-10w, on the Rice County side, completing it in April, 1932, for 169 bbls. of high gravity oil. This was the discovery of the Steckel pool, the Isern pool previously having been opened by Hilligoss and associates in section 12-20-11w, on the Barton County side, in October, 1931, with a small well. The price of oil was low and development slow for some time, but Courtney B. Davis, Kansas independent operator, took a farm-out deal from the Gulf Co., brought in a 1,700-bbl. well in section 31-19-10w, and the boom began. It wasn't long after that until the Steckel and Isern pools were practically joined, and the general area became known as the Silica field—now Kansas' largest producing area.

The Davidson pool was opened in 1930; Ellinwood in 1932; Beaver in 1934; Albert, Eberhardt, Feist, Heizer, Lanterman and Peter in 1935; and Ainsworth, Bloomer, Ehly, Hiss, Rick and Susank in 1936.

Drilling activity in Barton County will be extensive during the next five years, for leases on many blocks expire next year, in 1939, 1940 and 1941. Approach of the expiration dates of leases will doubtless cause much drilling, other than that which would naturally follow in the wake of the many discoveries that have been made and will be made in the county.

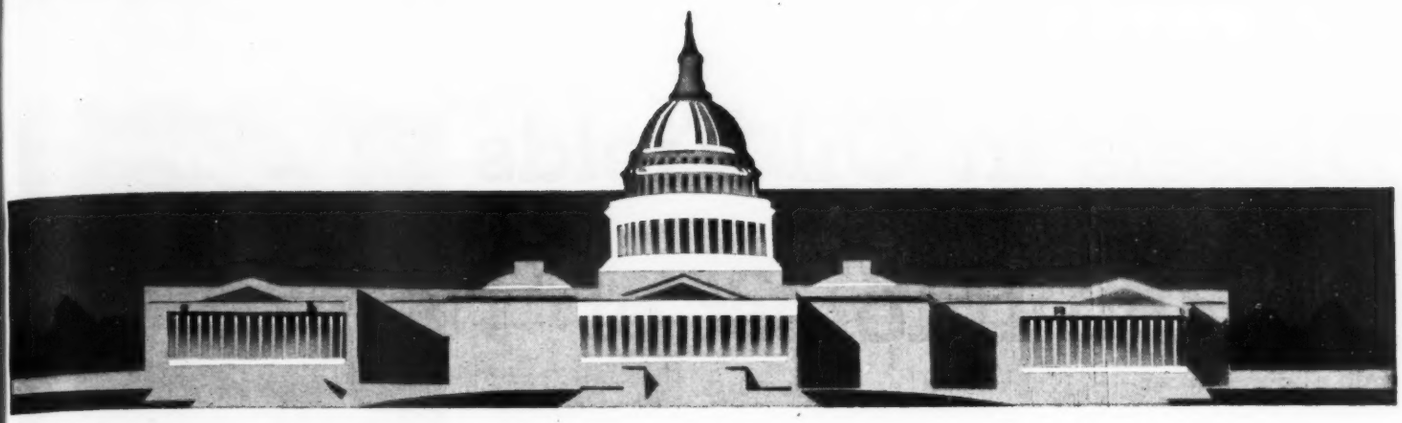
The possibilities of Barton County still are very much undetermined—it still is largely a wildcat country, with much unexplored territory.

Only such economic forces as glutted markets and deep price cuts will stop development in Barton County—until then, the largely successful quest for oil along the Barton Arch in Barton County goes merrily ahead.



E. C. Jacobson, Maps, Tulsa.

Here, in Barton County and adjoining townships of neighboring counties, nearly one-half of Kansas oil is produced



Oil and Gas Companies Figure in Supreme Court Litigation

By HENRY D. RALPH

WASHINGTON, Oct. 4.—Oil and gas companies are parties to more than a score of cases on the docket of the Supreme Court as the fall term opened. The cases involve public utility orders, state and federal taxes, lease controversies, patents and other matters.

Four gas companies are appealing rate orders and other regulations by state public utilities bodies.

United Gas Public Service Co., appealing a decision of the Texas Court of Civil Appeals, seeks reversal of an order of the Texas Railroad Commission fixing a rate of 55 cents per 1,000 feet of natural gas in Laredo, Tex., contending the order was retroactive and is invalid on the ground the reduced rate would fail to yield the company a reasonable return upon the fair value of its property. It contends the order is confiscatory on the ground that in 1932 it resulted in a return of slightly more than 1 per cent on the value of its property and a return of slightly more than 2 per cent in 1933.

Lone Star Gas Co., operating a system of trunk pipe lines in Oklahoma and Texas, is also appealing a court order enforcing an order of the Texas Railroad Commission prescribing maximum rates to be charged by the company for gas sold at wholesale rates at city gates to distributing companies in Texas cities. The rate was reduced from 40 cents to 32 cents per 1,000 feet, and the company contends this rate is confiscatory and that the order burdens interstate commerce.

Consumers Power Co. of Saginaw, Mich., is contesting the validity of an order of the city council of that city requiring the company to sell natural gas of higher heat content for the same rate used for artificial gas, the company contending the order violates the contract between it and the city.

Natural Gas Pipe Line Co. of America is asking the court to consider its unsuccessful suit to restrain the Illinois Commerce Commission from requiring a report on the cost of its property used in supplying gas to the Chicago District Pipe Line Co., contending that the company, as a Delaware corporation, is exempt from such examination by the commission, and publication of its accounts and records relating to transactions with local utility companies would disclose its trade secrets, injure its credit, and cause irreparable injury.

State Tax Cases

The first case on the docket is that of Atlantic Refining Co. against the state of Virginia, argued last year but set for reargument. The company is attacking Virginia's business privilege tax as applied to a corporation of another state which requires payment of an entrance fee measured solely by the corporation's total authorized capital stock and not based upon or related to the amount of capital employed within the state nor to the value of the privilege to be exercised nor to the amount of business proposed to be done or property owned in Virginia.

Also scheduled for early consideration is the case of Phillips Pipe Line Co. against the state of Missouri, atatcking the state's franchise tax for the privilege of engaging in business in Missouri as applied to the company which is a foreign corporation claiming to be engaged as a pipe line carrier solely in interstate commerce.

Pure Oil Co. is seeking to restrain the Oklahoma Tax Commission from imposing on it the mileage tax on trucks of motor carriers used in intercity transportation as provided by the motor carrier act of Oklahoma, contending the statute is unconstitutional because it exempts the trucks of carriers not engaged in intercity transportation and also exempts trucks transporting certain commodities such as lumber and cotton.

The North Carolina chain store tax is attacked by Shell Eastern Petroleum Products, Inc., which contends it did not control 130 service stations operated under lease or contract, but the state included these stations as company-owned or controlled stations in assessing the chain store tax against it.

The constitutionality of the Texas intangible tax act of 1933 is contested by Texas Pipe Line Co., with lines extending through 88 Texas counties, which brought an unsuccessful suit to restrain the State Tax Board from certifying the valuation of the company's intangible property to taxing officers in localities in which the property is located. The company contends that as applied the act discriminates against it and relieves other taxpayers from this tax.

Federal Tax Cases

An aspect of the federal income tax allowance for oil depletion is involved in a case brought by Texas Pipe Line Co. appealing a ruling of the Board of Tax Appeals. When the company absorbed the properties of an affiliated company, the government refused to permit further reductions for depletion on the ground the first company had already taken sufficient deductions, while the company contends intercompany transfers of property create no new tax basis with respect to property transferred.

Houston Natural Gas Corp. is contesting a deficiency federal income tax assessment for 1930, contending expenditures for salaries and expenses of solicitors and cost of building lines to customers without charge were necessary business expense because of intense competition with Houston Gas & Fuel Co.; the government claims these expenditures were made in acquisition of capital assets and are not deductible as business expense.

Bankline Oil Co. is involved in two pending federal income tax

(Continued on Page 84)

Special features of this

Oil-World Exposition Number

including a complete program; portraits of Exposition officers; directory of exhibits with completely keyed diagram of grounds; and a notable group of special articles of particular interest to producers, refiners, natural gasoline operators and pipe line men, will be found in a 158-page section that

Starts Opposite Page 112

Diesels in Oil Fields Engage Interest of S.A.E. Delegates

By D. H. STORMONT

Diesel engines and their fuels were the outstanding topics of discussion at the technical sessions of the Society of Automotive Engineers national regional fuels and lubricants meeting, held in Tulsa, September 30 and October 1. All technical meetings were well attended, over 125 engineers and technical authorities of oil companies, engine manufacturers, and transportation companies being registered.

In the opening session of the meeting, over which R. D. Best of Continental Oil Co., presided, C. L. Cummins, president of Cummins Engine Co., discussed "The Development of the Diesel Around Oil Country Problems." Mr. Cummins first told of early work done by his company in developing diesel engines, slides being used to show early-type stationary engines, and explained how various operating problems were eliminated in devel oping the diesel's fuel system to its present degree of efficiency. He then explained the principles and advancements made in automotive diesels, and pointed out their low operating cost as compared to gasoline engines.

The problem of diesel smoking is now being attacked by manufacturers and he expects this difficulty to be overcome in the near future. After which, he believes the automotive diesel will come into much wider use. In regard to taxation of diesel fuels, Mr. Cummins pointed out that all states, except two or three, now have taxes on fuels and that further taxation was not likely to hinder the adoption of diesel engines for automotive power.

A lengthy discussion by attending engineers took place following the conclusion of Mr. Cummins' talk, in which R. Stansfield, chief engineer of the Anglo-Iranian Oil Co., London, England, discussed the wide use of diesel engines by English trucking companies.

The second paper of the opening session was, "Economic Place of Automotive Oil Engines," by A. F. Campbell, manager of the Tulsa branch of the Waukesha Motor Co. He explained the principles and recent advancements made in the Hesselman diesels, and pointed out advantages of an engine having a fuel injection system similar to the full diesel but using a spark plug to ignite the fuel instead of employing the heat of compression.

"Up to the point of ignition," Mr. Campbell said, "the Hesselman engine cycle follows the same general routine as a modern high-speed compression ignition engine. At this point—the ignition feature—the two differ materially, the Hesselman using a conventional spark plug and the magneto or electric battery ignition system.

"The low compression (5.75:1 to 6.25:1) gives compression and combustion pressures, bearing loads, and stresses, in the other mechanical parts of the same order as found in the modern gasoline engine that is so acceptable to the public today. In operation it is softer and inherently quieter on account of these lower pressures than the full compression ignition engine. Even though it uses low compression, it must not be confused with a semidiesel engine because it has a definitely timed ignition which is not affected by load or speed."

Mr. Campbell then discussed dirt and other foreign materials in diesel fuels, pointing out that diesel engines must have much cleaner fuels due to the necessary fine fit of the pump mechanism and other moving parts. In their operation he

R. Stansfield, Anglo-Iranian Oil Co., London, England, and C. B. Veal, secretary of the Society of Automotive Engineers, New York

stated that care must be taken to see that the driver does not overload the engine as stuck piston rings, smoky exhaust, damaged bearings, and scored cylinders have been often known to be the result. . . . "engines should be operated at all times in a gear that will permit instant acceleration when the throttle is open. When this is done, the exhaust will remain clear."

In the Thursday afternoon session A. W. Herrington, president of Marmon-Herrington Co., Inc., discussed "Automotive Equipment in Geophysics Research Work," and Floyd Patras, of Southwestern Greyhound Lines, Inc., presented "Evolution of Bus Maintenance." Mr. Herrington's talk dealt with various types of equipment, such as special six-wheel drive trucks, half-track trucks, and full-

B. E. Sibley, Continental Oil Co.

track, track-laying tractors, and the type of topography to which each was best fitted. He also explained how high- and low-pressure tires are used to gain better traction in different types of soils. A special feature of this discussion was the showing of a moving picture of the Gulf Oil Corp.'s "marsh buggy" which the company is now using in geological work in Coastal Louisiana.

The Friday morning session was devoted to hearing papers on improvements in motor fuel characteristics and fuel utilization of automotive type diesel engines. "Some Improvements Relating to Seasonal Gasoline and Lubricating Oil," by R. C. Alden and D. G. Proudfoot, of Phillips Petroleum Co., was presented by Mr. Alden and R. D. Best, of Continental Oil Co., discussed "Essentials of Fuel Utilization in Diesel Engines of the Automotive Type." Mr. Best's paper is published in part on page 107 of this issue.

Mr. Alden's talk was illustrated by several slides showing the trends in vapor pressures and the several distillation points of motor fuels. His study revealed several important changes in volatility of gasolines, the most noteworthy of which, he said, was the increasing emphasis on seasonal volatility in motor fuels. In discussing the need for seasonal changes in gasolines he stated, "Although it is not exactly accurate, one cannot help being impressed by the way in which gasoline marketers have apparently paced their changes in quality of housebrand gasoline by corresponding earlier changes in the quality of premium gasoline. If this relationship continues, the premium gasolines of today with their very low 50 and 90 per cent points and their pronounced seasonal variations at the same points foretell a continued trend toward greater volatility and a wider use of seasonal control of mid- and final-boiling points."

The need for charts to assist service station attendants in determining dates on which lubricating oil changes should be made was also pointed out. For, "as automotive engines, because of increased speed and decreasing clearances, become more sensitive to the viscosity of lubricating oils, it becomes more necessary to make seasonal oil changes with greater accuracy."

Two other papers delivered on Friday afternoon were "Engine Cooling Problems," by F. M. Young, president of Young Radiator Co.; and "Bringing the Private Owners' Airplane Up to Date," by Mac Short, of the AiRover Co.

U.S.S.R. Cracking Expanding; Now Fourth of Total Capacity

By WILLIAM J. KEMNITZER

Refining did not become a problem of the Soviet petroleum industry until the growth of the automotive industry in that country. This growth did not take place at any appreciable rate until after 1932. Prior to that time and beginning with the first Five-Year Plan in 1928, a considerable number of tractors and trucks had been placed in operation but the number of automobiles was insignificant. During this period the demand for petroleum was essentially for kerosene as a tractor fuel. A greatly increased output of benzine or other high-grade motor fuels was neither necessary nor contemplated. Accordingly, in 1928 the Soviet petroleum industry both as regards refining and production was satisfactory and ample to take care of domestic requirements.

This is the third installment of Mr. Kemnitzer's article began September 23.

With inauguration of the second Five-Year Plan in 1932, it was clear that large quantities of high-grade motor fuels would be needed. To satisfy the increasing demand, both real and anticipated, emphasis was placed on refinery expansion and improvement. The principal aim of the Soviet petroleum industry at this time was modernization of refining, with a view toward increasing both the quantity and quality of motor fuels, and soon new refineries were being built and old ones reconstructed.

Prior to 1928 there was no cracking capacity in the U.S.S.R. By 1932, however, such capacity exceeded slightly 3,000,000 tons and constituted 10 per cent of the total refining capacity of the Union. By 1936 this capacity had grown to 6,000,000 tons, and the plan for 1937 prescribes 15,780,000 tons, or 24.5 per cent of the total of 64,480,000 tons.

With the increase in cracking capacity came an increase in the percentage of benzine recovered. In 1913 less than 3 per cent of the crude oil run to stills resulted in benzine. Until after 1928, the production of benzine was still insignificant. During 1928, from 8,882,000 tons of crude oil run to stills, only 752,000 tons, or less than 12 per cent (by volume) of benzine was manufactured. By 1932, however, the benzine output amounted to 14.2 per cent of the runs; in 1936 this percentage had reached 17.7 per cent; and for 1937 the plan is set for the benzine output to reach 21.6 per cent of the total runs to stills.

By 1935, it was apparent that refining was the weakest point in the Soviet petroleum industry. This weakness was recognized fundamentally by the low average efficiency as measured by the percentage recovery of higher-grade motor fuels, principally benzine. In the United States, for example, the quantity of gasoline obtained from crude oil averages better than 45 per cent; in the U.S.S.R. the average recovery of benzine is less than 20 per cent (in volume) of the crude run to stills notwithstanding that a few individual cracking units are reported to obtain much better results. The reason for this low average percentage recovery is mainly (1) the small volume of cracking capacity compared with the total refinery capacity, and (2) the poor average grade of refinable crude petroleums.

TABLE 9.—CAPACITY OF PETROLEUM REFINERIES IN THE U.S.S.R. BY TYPES OF REFINERIES, JAN. 1, 1933 AND JAN. 1, 1938.

(In thousands of metric tons)

Type of plant—	Jan. 1, 1933 Vol.	Jan. 1, 1933 Per cent	Jan. 1, 1938 (Plan) Vol.	Jan. 1, 1938 (Plan) Per cent
Straight-run	23,400	77 1	40,900	63.4
Cracking	3,030	10.1	15,780	24.5
Nonmotor fuel units	3,961	12.8	7,800	12.1
Total	30,391	100.0	64,480	100.0

TABLE 10.—OUTPUT OF SELECTED REFINED PRODUCTS IN PER CENT OF CRUDE OIL DISTILLED IN THE U.S.S.R., 1913, 1932, AND 1937.

Refined Product	1913	1932	1937 (Plan)
Benzine (with ligroine)	2.7	14.2	21.6
Kerosene	26.6	20.2	19.7
Fuel oil (mazout)	55.0	48.5	32.4

TABLE 11.—PRODUCTION OF BENZINE IN THE U.S.S.R. BY METHODS OF MANUFACTURE 1929 TO 1936, BY YEARS

(In thousands of metric tons)

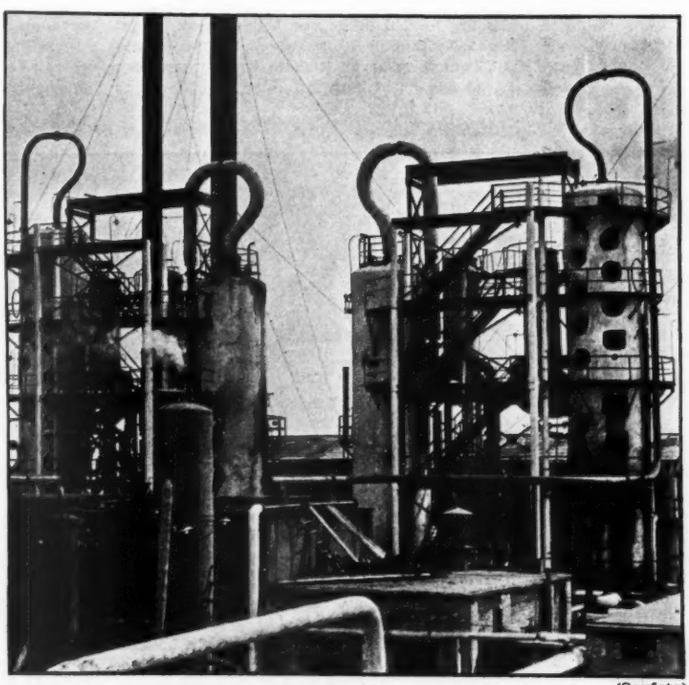
Year	Benzine (without ligroine) Produced— Straight-run	Cracked	Natural Gas	Total
1929	1,060	2	28	1,090
1930	1,560	39	55	1,654
1931	1,729	405	79	2,214
1932	1,771	592	96	2,459
1933	1,401	681	87	2,169
1934	1,411	834	65	2,310
1935	1,253	1,136	50	2,430
1936	1,196	1,754	55	3,005

In the United States, the capacity of cracking units is about 61 per cent of the total throughput capacity of refineries. In the U.S.S.R., this cracking capacity is only about 17 per cent of the total volume of crude that can be refined. Furthermore, in America, the average quality of the crudes is better than those of the U.S.S.R. In the United States the crude petroleums will average better than 36 degrees A. P. I. gravity, contain very little sulfur or other objectionable compounds, and lend themselves to the manufacture of high-grade motor fuels with good anti-knock qualities. In the Soviet Union the bulk of the crude petroleums available for refining probably average less than 30 degrees A. P. I. gravity, contain considerable sulfur, and do not yield motor fuels of high octane content.

In addition to these natural and "technical" handicaps, the Soviet refineries have not been always located to the best economic advantage. The older established refineries were situated mostly in or near the oil fields just as in the beginning of the American industry the refineries were located in the oil region of Pennsylvania. It is generally recognized that refineries must be built in or near consuming centers and that they must be connected with the oil fields by cheap and efficient transportation facilities, mainly pipe lines. Some of the newer refineries are still dependent on expensive and inadequate transportation of crude oil by tank barge and tankcar. It is also important that refineries be "flexible" enough to handle various types of crude petroleum without necessitating the uneconomic shipment of suitable oils.

Despite the average low efficiency of Soviet refining as measured by the percentage benzine output, the proportion of benzine obtained through cracking has increased materially over that obtained by straightrun methods. Actually, the quantity of benzine manufactured by straightrun distillation has decreased 32.5 per cent from 1,771,000 tons in 1932 to 1,196,000 tons in 1936. At the same time the amount of benzine obtained by cracking has increased 196.3 per cent from less than 592,000 tons in 1932 to 1,754,000 tons in 1936. The quantity obtained from natural gas is small and has decreased from 96,000 tons in 1932

(Continued on Page 78)



(Sovfoto)

Cracking unit at Saratov on the Volga River

Mid-Year Program of A. A. P. G. for Meeting in Pittsburgh Next Week

General Chairman R. W. Clark of Pittsburgh, Pa., has released the final program arranged for the mid-year meeting of the American Association of Petroleum Geologists to be held in the William Penn Hotel, Pittsbugh, Pa., October 14, 15 and 16. Preconvention field trips for October 11 to 13, inclusive, have been arranged to take in fields near Pittsburgh and as far south as Charleston, W. Va.

Registration starts on October 14 and technical sessions will be held morning and afternoon on Thursday, Friday and Saturday. After the Saturday afternoon football game a post-convention field trip will start to visit the Drake well and Oil City and the Bradford field.

TECHNICAL SESSIONS

Thursday, 2 to 5 p.m.

Call to order by R. W. Clark, Gulf Oil Corp., Pittsburgh, Pa., general chairman,

Address of welcome, J. French Robinson, Peoples Natural Gas Co., Pittsburgh, Pa.

Response, H. B. Fuqua, Gulf Oil Corp., Fort Worth, Tex., president.

H. B. Fuqua, presiding

"History of Development and the Geologic Relationships of the Appalachian Fields," George H. Ashley, Pennsylvania Geological Survey.

"Gravity, Magnetic and Geologic Profile Across the Appalachian Mountains," L. L. Nettleton, Gulf Research Laboratory.

"Seismograph Exploration in the Appalachian District," L. E. Randall, Geophysical Co., Inc.

Friday, 9 to 12 a.m.

J. E. Billingsley, presiding

"The Oriskany in Pennsylvania," Charles R. Fettke, Carnegie Institute of Technology.

"The Oriskany in West Virginia," Robert C. Lafferty, Owens-Libbey-Owens.

"Petroleum Geology of Eastern Ohio," Wilbur H. Stout, Geological Survey of Ohio.

"The Medina and Trenton of Western New York," C. A. Hartnagle, New York State Museum.

Saturday, 9 to 12 a.m.

DeWitt T. Ring, presiding

"Geological Occurrence of Oil and Gas in Michigan," B. F. Hake, Gulf Oil Corp.

"Geological Occurrence of Oil and Gas in Illinois," Theron W. Wasson, Pure Oil Co.

"The Chester of Western Kentucky." R. E. Stouder, Louisville Gas & Electric Co.

"Results of Repressuring in Kentucky," Newall M. Wilder, Lexington, Ky.

Gulf Relinquishes Jennings Facilities to Stanolind

HOUSTON, Tex.—Gulf Refining Co., effective October 1, discontinued purchases, excepting heavy crude, in the Jennings (Evangeline) field, Acadia Parish, Coastal Louisiana, and relinquished its facilities for handling crude to Stanolind Oil & Gas Co. The heavy crude excepted, amounting to approximately 1,000 bbls. daily, is lube stock oil produced in the old shallow field, which Gulf has been buying since the early days of the field. The purchases discontinued consist of lighter crude developed within the past several years in the deep sand around the flanks of the old field.

Gulf has been handling the lighter crude over facilities acquired from the former Yount-Lee Oil Co. at the time Stanolind Oil & Gas Co. took over the properties of that company. When it took over the facilities it did not expect the light crude to be handled to exceed 2,000 bbls. daily, but since then this has increased to between 8,000 and 9,000 bbls. daily. Purchases of this crude had been restricted to 50 per cent but the volume exceeded the company's requirements, forcing it to discontinue purchases entirely.

Gulf Refining Co. until lately has been the sole major purchaser in the field, moving the oil by barge to Port Arthur, Tex. Jennings has not had a pipe line outlet until the past month when Continental Oil Co., entering as a purchaser, completed a 6-inch line to Tepetate, a distance of 12 miles, where the line ties into the company's main line to Lake Charles. A second outlet is being provided by Standard Pipe Line Co., which is laying a 10-, 8- and 6-inch line from Roanoke to Baton Rouge, passing through the field.

Petroleum Refiners Division, Credit Association, Meeting

The annual fall conference of the Petroleum Refiners Division of the National Association of Credit Men will be held at Indianapolis, Ind., October 25-26-27, J. M. Judson, Sinclair Refining Co., Chicago, chairman of the Board of Governors, will preside. R. A. Colliton is secretary.

"Credit Applications" will be considered as follows: Wholesale, (a) reseller, (b) industrial. Consumer, (a) householder (fuel or furnace oil), (b) credit card. Farmer.

Other topics will be: "Uniform Judgment Note Laws in All States," "Credit Investigations, Consumer (fuel or furnace oil), Credit Cards, Farmer," "Collection Procedure on Delinquent Accounts," "Use and Abuse of Cash Discount," "Accounting Procedure on Return of Barrels and Drums," "Changes and Developments in Bankruptcy Legislation," "Credit Cards," and "Uniform Lien Laws in All States."

In addition to Chairman Judson the Board of Governors is as follows: E. R. Siler, vice chairman, Socony-Vacuum Oil Co., Inc., St. Louis; H. E. Butcher, Cities Service Oil Co., Chicago; Webb R. Charles, Globe Oil & Refining Co., Wichita, Kans.; E. W. Hesse, Phillips Petroleum Co., Bartlesville, Okla.; M. C. Roberts, Tide Water Oil Co., Tulsa.

Next Indian Lease Sale at Muskogee, October 14

The next Indian lease sale in Oklahoma is scheduled for October 14, at the Five Civilized Tribes agency in Muskogee, A. M. Landman, superintendent, announced. A total of 101 tracts, including approximately 8,730 acres of Indian lands, will be offered at the sale. The tracts are located in Rogers, Tulsa, Creek, Wagoner, McIntosh, Okmulgee, Okfuskee, Hughes, Seminole, Coal, Pontotoc, Garvin, McClain, Grady, Stephens, Jefferson, Choctaw and Marshall counties.

THE MARKETS*

CRUDE OIL. *Production in the United States declined 21,625 bbls. per day in the past week, led by Oklahoma and Kansas. Rocky Mountain fields increased over 5,000 bbls. daily and California showed a 2,500-bbl. increase. The decrease in Oklahoma and Kansas was more than the total decline in all states.*

REFINERY: *Gasoline tankcar prices weakening under influence of seasonal drop in demand. Jobbers building up stocks of heating oils, which are correspondingly firmer. Bright stocks weaker in East, but holding fairly well in Mid-Continent.*

TANK-WAGON AND SERVICE STATION. *Retail conditions on Atlantic Coast improved. Sales of third-grade motor fuel falling off sharply with end of hot weather, and markets irregular in most areas, with reports of price-cutting.*

FINANCIAL. *Oil Stocks declined, as they have been doing for weeks. Average of 30 representative stocks for week ending October 2: High, 34.88; low, 31.98; close, 34.28. Week ending September 25: High, 35.51; low, 32.04; close, 32.40.*

**Details in market section.*

Per-well Basis of Proration To Be Continued in Fitts

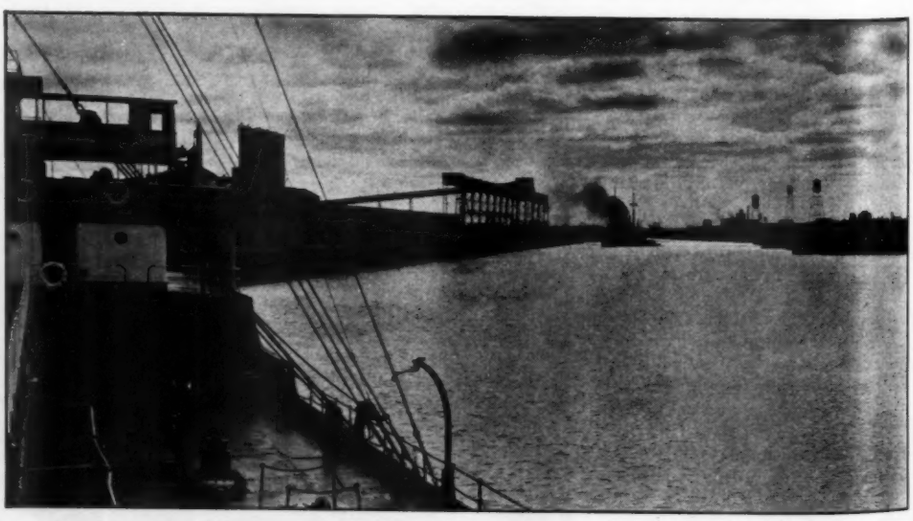
The per-well basis of proration will be continued in the Fitts field of Pontotoc County, Oklahoma, as the result of failure of operators to agree on a plan of lease-basis proration, W. J. Armstrong, chief conservation officer for the corporation commission, announced.

Proposed revisions for prorating production at Fitts were dropped after several conferences with operators and one hearing before the corporation commission, but may be considered later.

"If it is later decided to put the wells in a separate zone on a lease basis, they must have a separate set of tanks for each zone," Mr. Armstrong said. "Lines must be laid to these tanks from the wells in that zone to each separate set of tanks and no cross lines from other wells on the same lease producing in other zones will be allowed. The producers must not mingle the oil from the different horizons into the same tanks and the purchasers must report in the same manner.

"If it is later decided to put it on a field basis, that is, all the wells on a given lease will be produced in a common tankage, then the allowable will be added up for the wells of any lease and totaled; that will be the total allowable for that given lease and the purchasers would report in that manner. A separate treating system for each zone would have to be set up."

Mr. Armstrong directed Hugh Thomas, deputy conservation officer at Fitts, to enforce present rules "until such times as the operators will have a meeting, where they are all represented, and get together on some definite program."



Turning basin of Port Houston which lies at the head of a 25-mile channel along which are scattered many large refineries and terminals

the OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Eyes on Texas

Texas is properly proud of its prominence as a possessor and producer of petroleum. The one-time crop of crude has long since elbowed King Cotton backstage. It has placed Texas at the head of the mineral producing states in value of products.

The Lone Star state is producing about 41 per cent of the petroleum output in the United States today. It holds approximately one-half of the known petroleum reserves in this country. It has almost one-third of the refining capacity of the domestic refining industry.

Half of the 254 counties in the state are producing oil or gas and 95 additional counties are now being explored for new sources. This development by the oil and gas industry has enlarged employment, trade and industry wherever it has touched, has created or expanded communities, and added to the prosperity and progress of the people of the state.

During the present year Texas farmers and landowners will receive $60,000,000 in lease rentals and bonuses and royalty payments will reach $45,000,000. The oil industry pay roll in Texas this year will be $185,000,000.

That is one form of distribution the oil industry makes in Texas. But there is another. Although the properties of the oil industry in Texas represent 19 per cent of the true value of all taxable properties in the state this one industry pays 42.4 per cent of all taxes levied by the state and its local subdivisions.

Taxes paid by the oil producers of Texas to the state, local and federal governments, not counting the state gasoline tax, are calculated at more than $67,000,000 this year, an increase of $13,000,000 over 1936.

The state's tax revenue from oil and gas jumped from $14,968,000 in 1936 to $22,104,000 this year. The gross production tax alone was $6,000,000 greater than in 1937, accounting for 83 per cent of the increase. The legislature having increased the rate, and improved business conditions creating larger demand, the additional production also swelled the tax total.

On this showing it is evident that with no higher tax and with continuing normal increase in demand, Texas will have between two and three million dollars additional gross production revenue each year.

Instead of being satisfied with the oil industry paying 42 per cent of all the state and local taxes in Texas bills have been introduced at Austin to levy another $7,000,000 upon this one industry. It is proposed to increase the gross production tax from 2¾ per cent to 4 per cent and levy a further impost upon the pipe line companies of 3 per cent of net income, and increase the tax on gas.

Texas producers, in common with those in other states, have already encountered higher operating and labor costs. Increased taxation will further handicap producers, restricting development and forcing abandonment of properties that cannot be operated with any increase in overhead.

Texas has profited by the influx of operators from other states when taxation became a handicap to producers. It should be careful not to risk an exodus to more hospitable territory. Onerous taxation could very easily cause Texas to lose favor among the oil operators who risk their money to discover the mineral wealth that has enriched the state.

The legislature should remember that there is a great deal more involved than the familiar process of adding millions to the oil industry's tax bill. The industry must be left in a position where it can earn the money it is now paying. Continuance of the prosperity of Texas to which the oil industry contributes so largely is as important as any problem that confronts the legislators.

U.S.S.R. Cracking Expanding

(Continued from Page 75)

to 55,000 tons in 1936. Further disadvantages rendering achievement more difficult is that refinery construction takes too long, and when completed operations are too inefficient. Several of the newer plants on which construction started in 1931 have only just recently been completed or remain still unfinished. The principal causes of ineffectiveness are delay brought about by poor organization of the work, inadequate supply of materials and equipment, and insufficient control over execution of plans.

LIST OF MOST OF THE PETROLEUM TRUNK PIPE LINES IN THE U.S.S.R., 1936

Location	Diameter of pipe (inches)	Length in kilometers	Remarks
Baku-Batum	8	883	
Baku-Batum	10	822	
Grozny-Makhach-Kala	8	162	Plan to begin construction of unit (1935)
Grozny-Armavira	(?)	(?)	Reconstruction in 1936 of lines to transport 1,110,000 tons of crude oil
Grozny-Tuapse	10	618	
Armavir-Trudovaya	12	488	Kerosene (?)
Malgobek-Vrezka	10	25	
Maikop-Krasnodar	8	108	
Dossar-Rakuzha	6	84	
Emba-Orsk	(?)	(?)	Plan to complete (in 1935) construction of first section
Ishimbaevo-Ufa	(?)	(?)	Erected 1936 with 500,000 tons cap.
Outch-Kisyl (Cen. Asia	(?)	14	Erected 1936
Astrakan-(?)	(?)	(?)	Pipe line from, has cap. of 1,000,000 tons (1936)

The number and capacity of tankcars, trucks, tank ships and barges, etc., and the kind and capacity of storage are not available.

Under the conditions prevailing in the refining branch of the Soviet petroleum industry, this branch is unquestionably handicapped in fulfilling the demands made upon it by the present program of heavy-industry expansion. When demands are made for increasingly large amounts of motor fuel, about the only way at present of satisfying those demands is to increase the throughput of crude oil rather than by improving the percentage of benzine recovered. Such a predicament has caused an unnecessarily and wastefully heavy drain on the production of crude petroleum. Thus the production branch of the industry may be said to be the victim of an inefficiently developed refining branch despite the refinery improvements that have been made.

The bulk of the refining capacity is located in refineries bordering the Caucasus region in the south European section of the U.S.S.R. As of January 1, 1935 about 51 per cent of the capacity lay in the Azerbaidjan district; 24 per cent in the northern Caucasus; 15 per cent at Batum in Adjariston on the east shore of the Black Sea; 8 per cent in the Azov-Black Sea area; and less than 2 per cent in all other districts. In the past year and a half the capacity of refineries outside the Caucasus region has been increased but it is doubtful that if at the present time such capacity exceeds 5 per cent of the total.

The Quality of Soviet Motor Fuels

Soviet motor fuels are, in general, of poorer quality than those of other countries, particularly those of the United States. Soviet "benzine" is something like the gasoline of America except it is of lower anti-knock quality and has other detrimental properties which render it less stable resulting in inferior combustion. The octane range of Soviet benzines is not known, but it is significant to note that certain American motors—the Ford V-8, for example—when run on the best Soviet benzine, detonate badly.

In other Soviet motor fuels, ligroine, and the tractor fuel, "kerosene," the octane range is lower than corresponding fuels of other countries. The tractor fuel, for instance, in 1936, had an octane rating of 34.6, and some of it a rating as low as 33. At the same time Soviet engineers considered that 40 would be the minimum octane rating suitable for normal effectiveness. Similarly, Soviet ligroine has an octane range of from 50 to 54 whereas engineers estimate that a minimum range of from 56 to 58 is required.

As far as is known, no anti-knock compounds are used in Soviet motor fuels, despite the fact that neither most of the crudes yield "naturally" high-octane benzine nor are refineries equipped to turn out, with few exceptions, the higher-grade motor fuels.

LIST OF MOST OF THE PETROLEUM REFINERIES IN THE U.S.S.R., 1936

Name of plant—	Location	Remarks:
Petroleum distilling plant in the name of the October Revolution	Baku	Five tubular distillation plants of 2,000,000 tons capacity; four cracking plants of 420,000 tons, and a natural gasoline plant of 240,000 tons being added in 1936.
Petroleum distilling plant in the name of Dzhaparidze	Baku	
Petroleum distilling plant in the name of Pyatakov	Baku	
Petroleum distilling plant in the name of Stalin	Baku	
Petroleum distilling and refining plant in the name of Budenny	Baku	
Cracking plant in the name of Sturna	Baku	
Petroleum distilling and refining plant No. 1	Grozny	Additional solvent refining capacity 1936; new construction included four cracking plants with 1,000,000 tons capacity and increases in paraffin plant to 12,000 tons.
"Cracking" plant No. 2	Grozny	
Petroleum distilling and refining plant No. 4	Makhach-Kala	
Batum distilling and refining plant	Batum	
Petroleum distilling and refining plant No. 3	Tuapse	
Krasnodar distilling and refining plant	Krasnodar	
(Not known)	Berdiansk	New cracking plant installed 1936; one unit 250,000 tons.
(Not known)	Kherson	New cracking plant installed 1936; one unit 250,000 tons.
Distilling and refining plant in the name of Shaumyan	Leningrad	
Vladimirski distilling and refining plant	Moscow	New cracking plant installed 1936; one unit for 250,000 tons.
Petroleum distilling plant No. 1	Moscow	
Konstantiovski distilling and refining plant	Konstantinovka	
Petroleum distilling and refining plant No. 2	Ivanovo	
Petroleum distilling and refining plant in the name of 26 Baku Commissars	Gorki	
Saratov cracking plant	Saratov	New cracking plant installed 1936; six units for 500,000 tons.
Orsk distilling and refining plant	Orsk	Distillation unit for 500,000 tons; also two cracking units of 210,000 tons installed in 1936.
(Not known)	Ufa	Refinery being built, 1937, for treatment of Ishambaevo oil.
(Not known)	Turkmen	Tubular distillation plant of 200,000 tons erected 1936.
(Not known)	Uzbek	
(Not known)	Tadjik	
Khabarovsk cracking plant	Khabarovsk	

TABLE NO. 12—CRUDE OIL RUN TO STILLS IN THE PRINCIPAL REFINING CENTERS OF THE U.S.S.R., 1913, 1928, AND 1932 TO 1934 INCLUSIVE

(In thousands of metric tons)

Year	Azerbaidjan (Baku)	Northern Caucasus	Adjaristan (Batum)	Azov-Black Sea
1913	4,555.4	946.4	.....	49.8
1928	5,278.4	3,260.0	.....	92.5
1932	8,634.0	6,606.5	2,859.9	1,769.9
1933	9,309.4	4,282.0	3,053.0	1,471.8
1934	10,353.8	4,861.6	3,145.7	1,612.3

Year	Ivanovo	Gorki	Moscow	Uzbek	Tadjik	Total U.S.S.R.
1913	.....	151.7	...	...	...	5,702.3
1928	163.5	65.8	...	11.4	10.6	8,882.2
1932	199.2	88.7	11.7	29.3	15.3	20,214.5
1933	195.7	98.2	3.3	28.7	13.4	18,455.5
1934	171.1	110.9	.1	32.1	12.8	20,300.4

Transportation and Storage

Pipe lines connect crude production from the principal fields to refinery centers, but much of the oil from the newer fields must be handled by tankcars, or tank ships and barges. It is not sufficient alone that pipelines be built from the fields to the refineries. One of the greatest problems of transportation of crude oils in the Soviet Union is that of not being able to mix the different grades of oil in the lines because many of the Soviet refineries are not equipped to treat varying grades of crude without considerable trouble and interruption. Thus either separate lines for the different grades of crude must be built or refineries altered to treat various grades.

Pipe lines for the exclusive transportation of gasoline are not known, but one line is said to be for the exclusive transportation of "kerosene."

(To Be Continued)

OBITUARIES

EARLE W. BREWSTER, for 24 years associated with Union Oil Co. of California, and since 1933 district sales manager at Phoenix, Ariz., died September 25 in Phoenix.

HARRY M. WICK, 55, lawyer and oil producer (Woodchuck Oil Co. and Bi-State Oil Co.), operating in the Bradford and Allegany fields, died of pneumonia at Bradford, Pa., on Saturday, September 25.

EDWARD L. STEVENS, 43, sales representative of the Union Wire Rope Corp., died of a heart attack at his home in Kansas City, September 21.

JAMES E. COCHRAN, superintendent of the Taxman Refinery, died in a Wichita Falls, Tex., hospital September 29. He had been an employe of the company for nine years and became superintendent in April, 1935.

EDWARD MANCILL, 34, in the geophysical department of Humble Oil & Refining Co. for the past eight years, was killed in an automobile accident near Victoria, Tex., September 27, when the geophysical crew of which he was a member was returning to Victoria from the field.

New Oil-Burner Locomotive To Travel 120 Miles an Hour

NEW YORK, Oct. 4.—A battery of specially designed oil-burners of recirculation coil type, delivering steam at 1,250 pounds pressure is the designed power unit in a new steam turbine locomotive described by L. P. Michael at Chicago last week.

Mr. Michael, chairman of the steam turbine and condensing locomotive committee, speaking at the annual meeting of the Railway Fuel and Traveling Engineers Association, said the new steam-turbine engine would be capable of traveling 120 miles per hour. He said the proposed new locomotive would have direct mechanical transmission power from the turbine to the driving wheels. The weight would be 500,000 pounds and the turbine engine would develop 4,000 hp. on about 9 pounds of steam per horsepower hour.

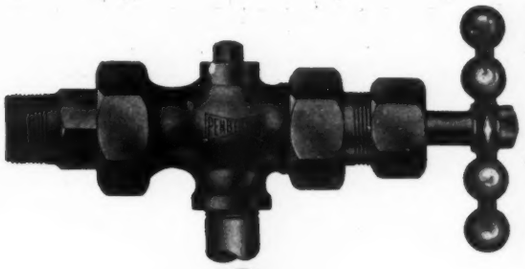
No estimate was available on the fuel oil consumption characteristics of the engine described, but an efficiency of 85 per cent would be obtained, according to Mr. Michael.

Baldwin Locomotive Co. took a stand last week through a review on "The Motive Power Situation of the American Railroads" that fuel oil-generated steam will be the mainstay of railroad operations for an indefinite period and that diesel-powered units will remain comparatively obscure.

PENBERTHY *Reflex Gages*

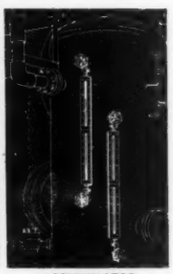
(Licensed under Jerguson Patent)

have many refinery and natural gasoline plant applications



MULTIPLE TYPE EQUIPPED WITH DROP FORGED STEEL GAGE VALVES

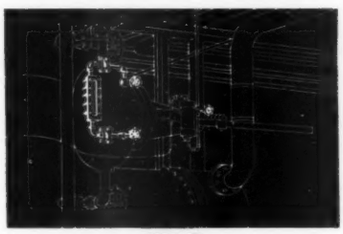
VAPOR RECOVERY



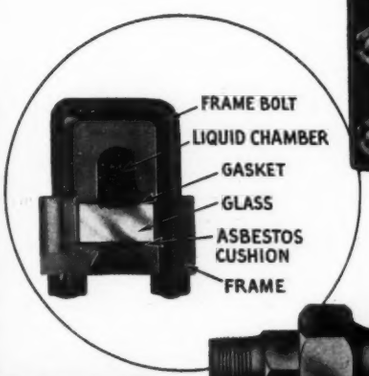
ACCUMULATOR TANK

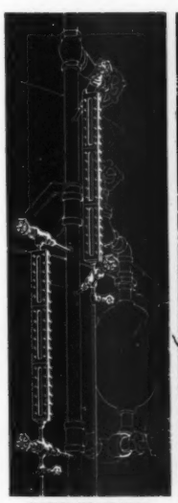
● The sketches show only a few of the many important applications for Penberthy Reflex Gages in oil refineries and natural gasoline plants. As a matter of fact, Penberthy Reflex Gages are preferred wherever a liquid level must be easily and positively visible . . . when that liquid is under pressure or at high temperature (or both).

Penberthy Reflex Gages are of exceptionally rugged construction; they are made in any length desired and for various kinds of liquids. We shall be glad to quote upon your requirements.

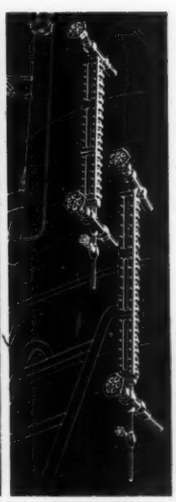


REBOILER

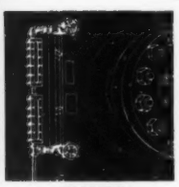




VAPOR SEPARATOR



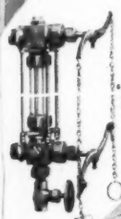
CRACKING STILL



STABILIZER

Automatic Injector

Ejector, Syphon or Jet Pump



"Navy Type" Liquid Level Gage

"Safeguard" Automatic Liquid Level Gage

"All-Iron" Automatic Liquid Level Gage

Gas Engine Lubricator

Snap Lever Oiler

Plain Brass Oil Cup

Plain Compression Grease Cup

PENBERTHY INJECTOR COMPANY *Manufacturers of* QUALITY PRODUCTS *Since 1886*
DETROIT, MICH. • *Canadian Plant, Windsor, Ont.*

Screw Plunger Grease Cup

Spring Compression Grease Cup

Automatic Electric Sump Pump

Automatic Cellar Drainer (Water or Steam Operated)

Dipless Air Cock

East Texas Populace Attend A. P. I. District Meeting at Kilgore

KILGORE, Tex., Oct. 5.—Field men, operators and residents of the East Texas oil field district have come to look forward to the meetings of the East Texas Chapter of the division of production of the A.P.I. with much interest as all have proven to be productive of much valuable information concerning conditions in that great field. At the meeting held here this evening there was a good crowd in attendance and in addition to the local officers several national officers of the A.P.I. were present, including Carl A. Young, secretary of production division; A. G. Levy, chairman of committee of the southwestern district; R. D. Risser, chairman, advisory committee and Walter H. Meier, national chairman of the district activities committee.

The meeting was presided over by Byron Meredith, Sinclair Prairie Oil Co., Kilgore, Texas chairman of the chapter and two very interesting papers were presented. The first paper was entitled "The Use of Malodorants in Natural Gas" and was presented by Olin Culberson, director Utilities Division, Texas Railroad Commission. Because of the New London school catastrophe a great deal of local interest was aroused and following the reading of the paper W. E. Schoeneck of the Ohio Oil Co. discussed the problem from the operator's point of view. As the Texas legislature passed House Bill 1017 at the regular session requiring the use of odorants in natural gas used for domestic purposes the campaign of education of the public to awaken interest in the proper use of natural gas and the practice of safety rules has been carried on actively.

The second paper was on "Plug Back Work in the East Texas Field" presented by R. H. Maples, Cities Service Oil Co., and F. J. Mikeska, Gulf Oil Corp. and was in the nature of a review of the work that has been done in repairing East Texas wells and restricting the movement of water into the oil wells as much as possible. The rapid encroachment of the Woodbine water is giving the operators in East Texas oil field much concern and this paper was both timely and of much value because it outlined work that has been done and evaluated the results in terms of percentage successful. The squeeze method averaged 70.8 per cent successful, that is water was shut off, and the non-squeeze method resulted in 75.7 per cent of the wells treated being repaired. The squeeze method seems to be rapidly gaining in favor and it was reported that between March and September this year a study of jobs done indicated 77 per cent were done by the squeeze method and 23 per cent were of the nonsqueeze type of plug back job.

The meeting was held in the Kilgore High School auditorium and it was estimated more than 400 persons were present and a large portion of the audience were persons living in the district but not directly connected with the oil industry. This ability to attract the general public to meetings of this kind has long been the objective of the A.P.I. and the results being attained by the East Texas Chapter are most gratifying. Much of the credit for this interest can be attributed to W. S. Morris, secretary-treasurer of the chapter and chairman of the East Texas Engineering Association.

Retailers Association Firm For Conservation Policy

ROCHESTER, N. Y., Oct. 5.—After taking a stand opposing all but a minimum of federal regulation for the petroleum industry, the National Association of Petroleum Refiners adjourned its fifth annual meeting here last week and selected St. Louis, Mo., as the 1938 convention city.

A firm stand for conservation of petroleum in this country was urged by Fred L. Brewer, of La Grange, Ill., vice president of the association, who told attending retailers motor fuel prices as high as now existing in Europe face this country if our reserves are not protected.

"Wasting of the petroleum supply means in 15 years, maybe less, the United States will have to pay prices as high as in European countries for a gallon of gasoline," said Mr. Brewer. "Throughout this country we have an average price now of 14.9 cents a gallon. In Germany it is more than 50 cents, in Italy more than 40 cents, in England more than 30 cents. The Connally 'hot' oil act has helped a lot by forbidding the interstate movement of oil produced in excess of state regulations."

Declaring that worn out accessories are public hazards, J. S. Keller of Chicago told service station owners that it was a duty of general welfare to call customers' attention to bald-headed tires, moth-eaten windshield wiper blades, frayed fan belts and anaemic batteries.

Wilmer R. Schuh, of Milwaukee, president of the association, outlined an educational program, plans for which call for an instructor in each state to travel from community to community to conduct service station clinics.

"More than a strong back is needed to operate a successful station," Mr. Schuh said. "As motor cars become more complicated and the brands of petroleum products more diverse, the need of real knowledge about what gas does to a motor is apparent. Operators need to know about checking safety features of an automobile and call the owner's attention to any worn parts which are dangerous."

Regulation and limitation of the construction of service stations within a city also was advocated by delegates. A sample ordinance, which would prevent stations being erected too near each other, too near churches, schools, hospitals, theaters or public buildings without the written consent of the nearby property owners, was presented to the convention.

Placedo Allowable Raised To Fill English Contract

AUSTIN, Tex.—The Railroad Commission has raised the Placedo field's allowable from 8,442 bbls. daily to 10,615 to enable Barnsdall Oil Co. to sell 80,000 bbls. of gasoline monthly in England.

Ernest O. Thompson, commission member, would not permit the name of the purchaser to be published because of it being a trade secret which should not be given Barnsdall competitors.

"Our policy is to encourage Texas industry," said Colonel Thompson, "by raising allowables any time a Texas producer finds a new market for his product outside the regular proration schedules. It was doubly and unusually valuable in this instance because the crude will be refined at Corpus Christi thereby giving much employment to Texas labor, as well as placing money in the pockets of royalty and landowners.

"Any time a Texas producer can show us an outside market he has discovered we certainly will permit him to supply it upon the presentation of indisputable possession of the contract to fill it, but the proof must be convincing. We want to reward the man who finds the market."

Richland's Largest Producer: Wildcat Strike in Wayne

MATTOON, Ill., Oct. 5.—Pure Oil Co. No. 2 Palmer-Taylor, SW SW SE section 5-3n-9e, is the largest well thus far brought in in the Noble pool of Richland County. It started at 2,595 bbls. a day. Benedum & Trees, Inc. No. 1 Knapp, SE NW SW section 33-2n-7e. Wayne County, a wildcat, started at 700 bbls. a day.

Automobile Production Rate Abroad Increasing This Year

NEW YORK, Oct. 5.—Expansion of world automobile production is in many instances surpassing the increase in the United States and is an important factor in creating demand for record volumes of crude oil and refined products.

In a survey covering seven nations and a period of six months in 1937 in contrast to 1936, the Petroleum Press Service of London reports total automotive vehicle production at 3,586,335 units this year. During the first half of 1936 the same seven countries produced 3,205,070 units making this year's advance approximately 12 per cent.

The new all-time record production of 503,900 commercial units in the United States, a figure exceeding the previous peak of 1929 by 52,390 is of particular importance from a petroleum consumption viewpoint. Production by the seven countries for the six months periods is listed below:

Nation—	1937	1936	Per cent gain
United States	2,790,420	2,500,610	11.6
Great Britain	273,533	253,653	7.8
Germany	156,711	149,659	4.7
Canada	128,371	105,948	21.1
France	113,000	110,000	2.7
Russia	92,000	66,000	39.4
Italy	32,300	19,200	68.2

W.P.R.A. Technical Meeting Discusses Diesel Fuels

T. B. Rendel, director of engine research for Shell Petroleum Corp., advocated establishing a complete, concise and workable series of diesel fuel specifications before the technical meeting of the Western Petroleum Refiners Association in Tulsa, October 5. He justified this suggestion on the basis that to properly supply diesel engines of the future the refining industry must recognize the trend in diesel motor design in the direction of higher engine speeds, greater power output per unit of weight and per cubic inch displacement.

C. W. Berger, chief chemist for Globe Oil & Refining Co., spoke on "Laboratory Evaluation of Crude Oils" and a very complete summary of work being done by the Bureau of Mines for the refining industry was given by Boyd Guthrie of the Bartlesville station.

Change in Basis of Paying For Crude Set by Humble

HOUSTON, Tex.—A change in the basis of paying for crude purchased with payment on 100 per cent measurement was instigated by Humble Oil & Refining Co. effective October 1. The change, which means an increase of approximately 1 per cent in crude to producers, was met immediately by Sun Pipe Line Co., and Texas Pipe Line Co. Other purchasers are expected to follow.

Previously, prices for crude in Texas were based upon computation from tank tables showing 1 per cent less than full capacity, with corrections for temperature by allowing or deducting 1 per cent for each 25 per cent below or above 60° F., and with deductions to cover the full per cent of basic sediment, water or other impurities. In New Mexico, where Humble Oil & Refining Co. and Texas Pipe Line Co. also purchase crude, prices are based upon computation of quantities (including all corrections, adjustments and deductions) in accordance with the existing rules and regulations of the corporation commission of that state. If the quantities were computed on any other basis, the prices paid were more or less than the posted prices in proportion to the resulting changes in quantities.

Completes Automobile Tour Buenos Aires to New York

NEW YORK, Oct. 4.—Practicability of a highway system linking South and North America, which would open vast consumption possibilities to the petroleum industry, was demonstrated last week by Miguel Divo, Argentine sportsman who completed an automobile trip from Buenos Aires to New York.

As honor guest at a luncheon in the Hotel Pennsylvania tendered by R. T. Haslam, sales manager of Standard Oil Co. of New Jersey, Senor Divo told of incredible hardships over the uncharted sections of his route. He negotiated the entire trip in a Model T Ford between January 30, 1935, and September 28, 1937. Including back-tracking and hundreds of miles traveled at right angles to his set course, Senor Divo traveled a total of 22,000 miles. Motor fuel consumed on the entire trip totaled 1,750 gallons and 175 gallons of lubricating oil were required. Based on current retail prices of 20 cents per gallon for gasoline and 30 cents per quart for motor oil, the fuel consumption represents a total outlay of $560.

Production Problems Interest Los Angeles A.I.M.E. Session

By L. P. STOCKMAN

LOS ANGELES, Calif. Oct. 4.—A wide variety of timely subjects were discussed at the fall meeting of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers held here October 1. Technical sessions were attended by 500 members and guests.

Representing the national organization were R. C. Allen, A.I.M.E. national president, and A. B. Parsons, secretary. R. P. McLaughlin, associate chairman of the petroleum division, was in charge of the meeting. He was assisted by E. K. Parks, program chairman; W. H. Geis, entertainment

R. W. FRENCH
Continental Oil Co.

chairman; John Herman, president of the local chapter, and G. A. Joslin, local secretary. Mr. Parks of Standard Oil Co. presided over the morning session; Mr. Geis, consulting engineer, over the afternoon session, while Mr. McLaughlin presided at the informal dinner at the University Club.

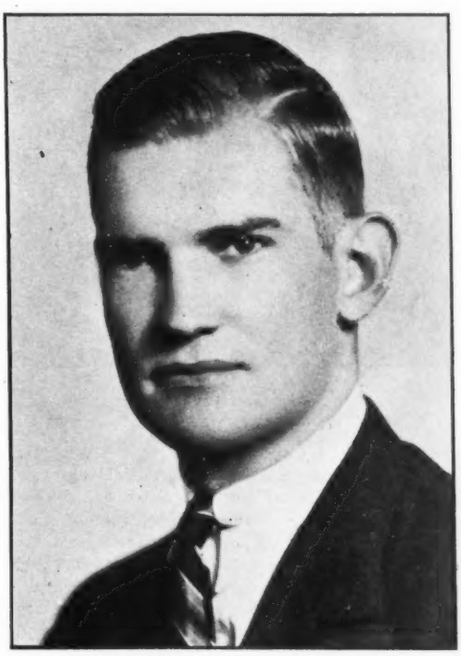
Charles R. Canfield, of Union Oil Co., discussing subsurface stratigraphy of the Santa Maria Valley field and adjacent parts of Santa Maria Valley, brought out that this field, in the northwestern corner of Santa Barbara County, is a structural syncline tending generally east and west. The structure of the Santa Maria Valley field is essentially a northward overlap of Monterey shales and sands over an old basement complex, called Franciscan. The Monterey is complexly folded and faulted and partly buttresses against the overlying gently dipping Sisquoc formation, which is in turn overlain by the Foxen, Paso Robles and Surface Stream gravels. In deeper parts of the valley, the so-called Santa Margarita intervenes between the Monterey and Sisquoc. The Monterey is the oil-producing formation of the Santa Maria Valley field and is divisible into six easily recognizable lithologic units. From top to bottom, there are (1) Arenaceous zone, (2) cherty zone, (3) Bentonitic-brown zone, (4) buff and brown zone, (5) dark brown zone, and (6) oil sand zone. The cherty zone and oil sand zone are the producing parts of the Monterey.

H. T. Wyatt, of Shell Oil Co., brought out interesting features of the Ten Section field in Kern County about 10 miles southwest of Bakersfield and about midway between Bakersfield and the easterly flank of the Midway-Sunset uplift. There are no surface indications of structure and its existence was determined by geophysical prospecting. Subsequent development has shown this structure to be a gently folded, elongated, anticlinal dome. Production is from sands of Upper Miocene age. This horizon has been penetrated to 1,188 feet, the upper 614 feet of which has been found to be oil bearing. This oil-bearing zone is predominantly sand with occasional intermediate shale beds which range in thickness from approximately 5 to 35 feet. Seven wells have been completed in this field with initial potential daily productions ranging from 1,535 to 3,865 bbls. of clean oil. These wells have proved a productive area having a maximum width of approximately 1 mile and a maximum length of approximately 1½ miles. Since discovery, the development policy has been to drill progressively outstepping wells for determining the limits of the field horizontally and vertically. The production policy has been to curtail all wells to approximately 25 per cent of their potentials. A minimum gas wastage has occurred and oil production rates are controlled in an effort to obtain optimum gas-oil ratios.

Gravel Packs

The paper on selection and installation of gravel packs prepared by C. J. Coberly and E. M. Wagner led to considerable discussion. It was indicated that in many fields it is impractical to set perforated liners to hold back all of the sand, due to fineness of sand and low bottom-hole pressures. In such cases it has been found gravel packing offers a practical solution to the sand problem and wells in Oklahoma City in the Wilcox sand were cited as good examples. With the hole open below the shoe of the water string, these wells produced considerable sand during flowing and gas-lift operations, resulting in large cavities being formed around the hole and when placed on the pump, sand trouble continued with attendant pumping difficulties. Perforated liners with a mesh fine enough to hold all of the sand are impractical due to low bottom-hole pressures of 20 to 50 pounds per inch. It was suggested a perforated liner be set and the cavity around the hole filled with gravel. Gravel packing in a number of cases has stopped sand trouble but yet allows maximum production in spite of low prevailing formation pressures.

The paper of E. N. Dunlap, of Standard Oil Co., on flow equilibria of two immiscible liquids in unconsolidated sands proved interesting. It being generally recognized that oil sands contain connate water in amounts varying up to 50 per cent of the pore space, laboratory experiments were performed on artificial cores to study the influence of this water on the permeability of sands to oil. The experimental results demonstrated that the presence of interstitial water in excess of 18 per cent of the pore space causes a pronounced reduction in the permeability to oil. This indicates if methods were devised which would remove water from the sand



ELDON N. DUNLAP
Standard Oil Co. (California)

immediately surrounding a well they should prove beneficial by increasing the productive capacities of wells and might also retard the intrusion of edgewater into wells. The laboratory observations also indicated it is possible to produce oil from sands having 50 per cent water saturation without having water appear in the well.

R. W. French, of Continental Oil Co., brought out that the necessity for heating most crude oil emulsions during treatment to meet pipe line specifications provides a profitable setting for the application of efficient heat exchange equipment. Centering about the use of a direct gas-fired heater of the pipe-still type, the proper exchange of heat between emulsion, waste water, clean oil, exhaust steam and cooling water may achieve considerable fuel economy as well as more efficient operation. In a specific case, tangible improvements in operating effectiveness were proved to be twofold. The average cut of the cleaned oil was reduced from

1.75 per cent to 0.5 per cent and the gravity of oil was raised to such an extent the average price per barrel received for all lease oil was more than 8 mills higher and resulted in a net increase in revenue of $980 monthly. Preparations are under way to employ sea water to cool the cleaned oil and an additional improvement is expected to follow. Use of a direct gas-fired heater instead of live steam resulted in an installation saving of $5,180; a fuel economy of 49 per cent; reduction of 5 per cent in maintenance and a net gain in the improved quality of crude oil.

Stanley C. Herold observed that a quarter century ago concepts respecting oil and gas reservoirs were crude. At that time attention was confined to the well, whereas the reservoir which supplies the

C. R. CANFIELD
Union Oil Co.

well now receives its consideration. Events and conditions within this reservoir have been subjected to detailed study for the purpose, first, of understanding the well in its performance and, secondly, of planning the best methods of developing the field at large. Theory and practice in this period have been drawn more closely together. Research and education in petroleum engineering have undergone modification. By looking backward we note the change in our concepts respecting reservoir functions. Our position today is not yet entirely satisfactory. We have made progress, and we shall continue to make progress, in the quarter century now beginning. Petroleum engineering offers an opportunity to young men of studious mind and proper training in the physical sciences of geology, physics, chemistry and mathematics.

E. J. Bartosh, of Bankline Oil Co., described the Wilmington structure as an irregularly shaped dome with faulting transverse to the principal axial trend. Dip of the strata is from 3 to 15 degrees and production is coming from the Repetto formation of Lower Pliocene age and Puente formation of Upper Miocene age. Up to the present five productive zones have been discovered. These from top to bottom have been designated as the Tar, Ranger, Terminal, Lower Terminal and Ford zones. Gravity of the oil ranges from 12 to 31 degrees and the average well potential is 556 bbls. daily.

Future production cannot be readily estimated because only the western portion of the potential area has been developed. That portion lying within the corporate limits of the city of Long Beach and believed to comprise about one-half of the total area has not yet been opened to drilling.

L. E. Porter of Richfield Oil Corp., discussed the El Segundo field, Los Angeles Basin, and brought out a number of important features not generally known. He divided the development of the producing zone which lies at a depth of from 7,200 feet of 7,400 feet into three stages. The first stage was the discovery and subsequent development by Republic Petroleum Co. in August, 1935. This was followed by a period of inactivity which was ended when Richfield Oil Corp. brought in a well flowing 2,533 bbls. daily. The third stage, which is now in progress, started when Texas Co. proved the western end of the field highly prolific by completing a new well flowing 4,563 bbls. daily.

The structure is interpreted as a faulted Schist representative of an old structural high which is Franciscan and pre-Franciscan in age. Faulted across the center from northwest to southeast, the field is divided into two major producing areas. In the eastern half of the field most of the oil is produced from a conglomerate schist while in the western half it is confined to fractures and fissures in the schist which may be fed by adjacent sedimentary beds. Irregularity of the producing zone

DR. STANLEY C. HEROLD

is well brought out by the fact that while there are 27 producing wells in the field four of them have produced approximately 58 per cent of the field's total production to date.

Read Winterburn, of Union Pacific Railroad Co. and formerly with Kettleman North Dome Association, described in detail the pressure drilling operations of Kettleman North Dome Association. An analysis of results showed that the average initial production of wells completed using oil and gas circulation was 1,965 bbls. daily whereas the average of wells completed with drilling mud was 1,279 bbls. daily. It is expected that the advantage of pressure drilling will increase as formation pressures continue to drop in the field.

The afternoon session was closed by the reading of technical paper No. 845 of the American Institute of Mining and Metallurgical Engineers, prepared by B. H. Sage and W. N. Lacey, dealing with the effect of pressure upon viscosity of air, methane and two natural gases.

WASHINGTON

(Continued from Page 73)

cases. In one, the government is appealing a lower court ruling giving the company a depletion deduction in the manufacture of casinghead gasoline from wet gas purchased from others, the government contending the manufacturer had no interest in the wet gas in the ground which could be the subject of depletion deduction. In the other case the company is contesting an income tax deficiency assessment with respect to income derived from release of state tidelands held by the state in trust for the general public which were leased to the company on a royalty basis for production of oil under California statutes.

Oil depletion allowance is also involved in the case of Helvering, commissioner of internal revenue, v. O'Donnell in which the Board of Tax Appeals ruled that O'Donnell was entitled to deductions for oil depletion on net profits from oil leases which he acquired under contracts with an oil company which purchased O'Donnell's stock in a corporation owning the leases and agreeing to pay one-third of the net profits from these leases. The government contends O'Donnell's interest in the profits does not constitute ownership of oil produced or of gross proceeds of the oil which is essential for depletion deduction allowance.

Oil Lease Controversies

A number of controversies over the interpretation of oil land leases are among the cases the court is asked to review. In two cases involving Yount-Lee Oil Co. the heirs to an estate seek to set aside a deed to oil lands and to recover oil taken from the lands on the ground it was obtained from their ancestor by fraud.

In a suit against Gulf Production Co., the Oakwood Realty Co. seeks to recover oil taken from that part of a lease under a railroad right of way, the oil company contending the lease extends to the center of way and the realty company claiming such interpretation of the lease violates the federal transportation act of 1920.

In the case of Broderick and others v. Sabine Lumber Co. the court is asked to interpret the Louisiana oil leasing law as applied to a situation where the lessees, although in possession of the surface of the property, claimed they were actually evicted from their property because of their inability to obtain what they considered proper payment for oil taken from under their land.

Three cases grouped together under the heading of Livermore v. Beal involves suits to quiet title to oil leases in which the government land office issued royalty oil leases but issued no leases of the premises of persons using the surface of the land, and the question is whether the federal government is a necessary party to the suit.

Miscellaneous Oil Cases

Among the miscellaneous pending cases in which oil companies are involved is that of Gillons v. Shell Co. of California involving the validity of the Gillons patent for an oil refining mechanism and charges of patent infringement by Shell.

Test 6 Miles North of Clay City Pool Is Showing Oil

MATTOON, Ill., Oct. 5.—Gulf Oil Corp.'s test in section 29-4n-8e, Clay County, 6 miles north and west of the Clay City pool, showed saturated core at a total depth of 2,932 feet. The crew was reaming the hole preparatory to deepening to the McCloskey sand which is expected at about 2,950 feet. This test may open a new pool, or prove to be an extension well in the Clay City field. The nearest production in the field is along the north line of sections 27 and 28-3n-8e.

NATIONAL SUPPLY

Extends a cordial invitation to the Oil and Gas Producing Fraternity to visit its booth during the . . . . . .

OIL WORLD EXPOSITION

HOUSTON, TEXAS . . . OCTOBER 11-16, 1937

Natural Gas News

Drillers Gas Company to Supply Gas to Sedgwick

TOPEKA, Kans.—The Kansas Corporation Commission ruled that when a pipe line company refuses to sell gas to a municipal plant the commission has the right to allow some other pipe line company to supply the gas to the city.

The Cities Service Co. has been serving the city of Sedgwick. The city decided to build its own distributing system. Cities Service declined to furnish the gas. Drillers Gas Co., which operates in nearby gas fields, offered to build a pipe line and furnish the municipal plant with gas. Cities Service objected.

The commission held it had no power to compel the city to build its own pipe line and Drillers Gas Co. was entitled to the certificate of authority to build and operate the pipe line.

Fort Worth Dilution Suit To Circuit Court Nov. 3

FORT WORTH, Tex.—Appeal of the Lone Star Gas Co. from a federal court decision upholding the city's right to ban dilution of the gas supply has been set for hearing before the U. S. Circuit Court of Appeals on November 3.

The city, which passed an ordinance prohibiting the introduction of noncombustible gases into Fort Worth's fuel supply, won a favorable decision in federal district court. The court upheld the findings of a master in chancery, who held hearings. The city relies in the case chiefly on evidence presented by E. R. Weaver, chief of the gas section of the U. S. Bureau of Standards.

Tests for Gas Odorization to Be Made Under Texas Law

AUSTIN, Tex.—A warning that tests for gas odorization would be made in homes and other places of consumption has been given by Railroad Commissioner Ernest O. Thompson.

Commission rules for the use of a "stench" to permit easy detection and forestall further explosions such as that at New London, are now effective.

Colonel Thompson said plans had been perfected to check all natural gas systems and plants for manufacturing butane gas tank equipment.

Columbian Carbon to Build Carbon Plant in Saxet

HOUSTON, Tex.—Announcement is made of plans for construction of a $400,000 carbon black plant in the Saxet field of Nueces County, South Texas, by Columbian Carbon Co. of Monroe, La. The plant will operate on residue gas from the new natural gasoline plant operated by Southern Minerals Corp., of Corpus Christi.

The plant will have a capacity of 25,000,000 feet of gas daily, and provisions have been made for possible enlargement later. A total of 40,000,000 feet is daily vented in the Saxet field. Construction of the plant will begin about mid-October, and will require several months for completion.

California Leads Country In Natural Gas Consumers

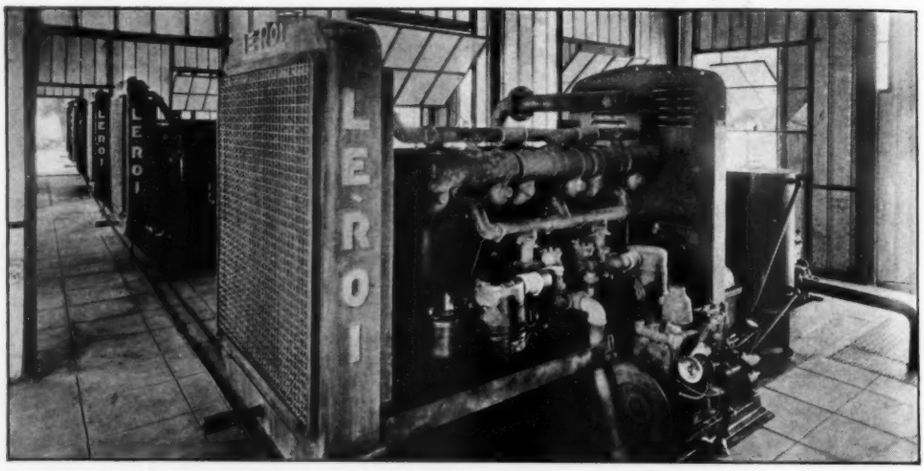
LOS ANGELES, Calif.—Consumption of natural gas during the first half of 1937 indicates that California for the fourth consecutive year will lead the nation in number of natural gas customers and annual volume of natural gas sales. Following the heaviest demand in the history of California gas companies during January and February, spring and summer demands have held up beyond previous expectations. High temperatures which were expected by most prognosticators to match the low temperatures of winter months failed to materialize.

In point of revenues preliminary figures indicate earnings of California gas companies will be considerably above 1936. This is based on a gain of 4.1 per cent in customers and a gain in revenues of 13.6 per cent for the first six months of 1937 over the same period last year. In volume of natural gas used, domestic consumption increased 29.3 per cent over 1936 and revenues from that source jumped 16.8 per cent. Commercial sales increased 18 per cent in volume and 5.7 per cent in revenues while industrial sales increased 5.5 per cent in volume and 9.2 per cent in revenues.

Endeavor to Widen Use of Liquefied Gas in Italy

NEW YORK—A concentrated effort has been launched in Italy to acquaint residents of isolated communities with propane and butane as domestic fuel

Pipe Line Activity



Socony-Vacuum field station, Hauschild pool, Kansas

Illinois Pipe Line Plans Are Approved by Commission

CHICAGO.—The Illinois Commerce Commission has approved plans for the Wabash Pipe Line Co., subsidiary of Pure Oil Co. The line is to run 45 miles from 1 mile east of Noble to a tank farm at Martinsville. The Wabash company and the Illinois Pipe Line Co. were authorized to enter a contract with each other providing for transportation of crude oil through the lines of each company and the lines of connecting carriers to refineries or other destinations.

Home Oil to Build New Crude Line From Cut Bank Field

GREAT FALLS, Mont.—Home Oil & Refining Co., which is to take over the producing properties of Nadeau Brothers and K. D. Pardee in Cut Bank, and consolidate other properties and build a 100-mile pipe line from the field to its refinery at Great Falls, has been granted a certificate of registration by the Securities and Exchange Commission for the issuance of 117,179 shares of $5 par common stock to provide $864,195 for refinery and pipe line expansion and construction. It also was granted authority to issue 23,185 shares to certain stockholders to realize $170,000 and 131,034 shares for acquisition of additional oil properties.

Missouri-Kansas Pipe Line Litigation Nearing End

NEW YORK, Oct. 5.—Next to the last step in winding up the receivership of the Missouri-Kansas Pipe Line Co., which brought six years of litigation, was taken last week in Wilmington, Del., when Chancellor Josiah O. Wolcott signed an order authorizing the newly-elected directors to borrow about $1,100,000 to pay all costs of the litigation and other obligations. The order authorized the receivers to turn back to the company most of its assets, debt free. Some of these assets will be pledged to secure the new loan. The company's assets consist principally of stock in the Panhandle Eastern Pipe Line Co., amounting to more than $25,000,000. Final report of the receivers is the only step remaining.

Southwest Texas Lines

CORPUS CHRISTI, Tex.—Preliminary tests were run last week on the new 67-mile, 6-inch trunk of Duval Pipe Line Co. in Southwest Texas. The line serves the Benavides or North Sweden field of eastern Duval County, terminating at the terminal of Republic Pipe Line Co. in Corpus Christi. Humble Pipe Line Co. has recently completed an 8-inch loop on its Mirando City line, making that trunk, which joins the fields of Duval, Webb, Zapata and Jim Hogg counties, with tidewater at Ingleside, two 8-inch lines throughout the distance.

Atlantic Gasoline Line To Be Extended to Utica, N. Y.

BUFFALO, N. Y.—Atlantic Refining Co., which is constructing a gasoline pipe line from Williamsport, Pa., across the state of New York to its river-rail terminal here, plans construction of an extension of the line from Buffalo to Utica. Rights of way and necessary consents for the Buffalo-Utica line have been obtained.

The company's new river-rail terminal here, soon to be under construction, will cost about $150,000. It will occupy 18 acres. The pipe line will terminate at the Niagara River and facilitate distribution of gasoline on the Great Lakes by boat and barge.

Gulf Completes Its Line Into the Jefferson Area

SHREVEPORT, La.—Gulf Production Co.'s 6-inch pipe line to the Jefferson, Tex., area of Rodessa connecting into its system in the field has been completed. The new line, about 12 miles long, is the first built to the Jefferson part of the field in Marion County, Texas.

gases. For the purpose of manufacturing and distributing propane and butane, a new company (S.A. Liquigas) at Milan has been formed with the support of the minister of corporations and with the approval of the head of the government. The new company plans to erect plants at Mestro which will utilize the propane and butane gases from the A.G.I.P. refinery at Porto Marghera.

The company anticipates that it will have available about 4,000 tons of compressed liquid propane and butane during the first year. A material increase of available supply is expected when the hydrogenation plants of A.N.I.C. at Bari and Livorno are in operation.

Canadian Gas Production Shows Slight Decline for This Year

OTTAWA, Ontario. — Natural gas production from all Canadian fields in June totaled 1,340,699,000 feet compared with 1,759,878,000 feet in May and 1,377,573,000 feet in June, 1936. Production for the six months of 1937 totaled 15,136,287,000 feet compared with 15,808,755,000 feet in the same period last year.

A. B. Holmes and associates of Toronto, who recently completed a gasser good for 3,286,000 feet a day in the southeast extension of the Brownsville field in Bayham Township, are planning to market the production to the Otter River Gas Corp. The Otter River company intends to pipe gas to Kitchener and Waterloo.

Michigan Warned of Shortage Unless New Fields Are Found

SAGINAW, Mich.—Predictions that many Michigan cities will be confronted in a few years with natural gas shortages similar to that now felt at Mount Pleasant, unless new fields are discovered in the state, have come the past week from the state conservation department.

F. R. Frye, petroleum engineer in the state geologist's office, asserted the gas supply in the Broomfield area, which serves Saginaw, Bay City and Midland, is "pretty well depleted" and that supplies from the Austin and Six Lakes districts may become inadequate within three or four years.

Mount Pleasant, which gets its gas supply from the Clare, Vernon and Leaton fields, felt the pinch of a diminishing supply the past week, when Gas Corp. of America canceled its gas contract with Central State Teachers College and hinted at possible further cancellations on the ground that it may be unable to meet winter peak requirements from Mount Pleasant, Clare and Rosebush, the three towns it serves.

"We've seen a shortage coming for two or three years," said Mr. Frye. "Anybody could see it. Such a condition always develops if new supplies aren't found."

The Broomfield area, only 14 miles from Mount Pleasant, is under contract to the Consumers Power Co., supplying Saginaw, Midland and Bay City. The same firm supplies Lansing from the Six Lakes field, which also is the supply source for Grand Rapids, served by the Grand Rapids Gas Light Co., a subsidiary of American Gas & Electric Corp.

United Gas Public Service Co. Reorganizing Its Subsidiaries

HOUSTON, Tex.—Acquisition by two newly formed companies of the gas and oil properties formerly owned by United Gas Public Service Co. and three subsidiaries, United Production Corp., Northern Texas Utilities Co. and Southern Gas Utilities, Inc., is announced by N. C. McGowen, president.

The new companies are Union Producing Co. and United Gas Pipe Line Co. Union Producing Co. has acquired all gas and oil producing properties of United Gas Public Service Co. and these subsidiaries, and all natural gas transmission facilities, including gasoline extraction plants, formerly owned by these companies have been acquired by United Gas Pipe Line Co.

Since all the functions previously performed by four companies will now be concentrated into the two new companies, the change represents a further step in the simplification of the corporate structure and operations, according to Mr. McGowen.

Refinery Expansion

Six Copper Sweetening Units To Be Built by Phillips

Six additional copper sweetening units will be installed by the Phillips Petroleum Co. in its Panhandle, West Texas and New Mexico areas. One of these, a liquid copper sweetening system, will be installed at Phillips Judkins natural gasoline plant at Odessa, Tex., and will, for the present, process only natural gasoline. When the thermal polymerization unit now under construction at Judkins is completed, all products will be copper sweetened.

Five more Perco units are to be constructed at Phillips' refinery at Borger, Tex., to process its entire output of polymerized, cracked, vapor-recovery, and straightrun gasolines and naphtha distillates. These new units are necessary because of the completion of additional thermal polymerization stills, and a general increase in output at this refinery.

Phillips began using the copper sweetening process on a plant scale several years ago. The process, a development of the Petroleum Engineering Research Co., of Bartlesville, Okla., is now being used by more than a score of refiners and natural gasoline manufacturers throughout the country; more than 50 units are now in operation treating all types of sour distillates. Construction of the six plants is to begin immediately upon receipt of materials.

Reopened Old Dutch Refinery To Operate on Salem Crude

SAGINAW, Mich.—Partial solution of the marketing problem of the new Salem oil field in Allegan County is seen in announcement that the Old Dutch refinery at Muskegon, idle since last winter, will be reopened to provide an outlet for about 1,000 bbls. daily of the Salem field's production. The Muskegon refinery has agreed to pay $1.27½ a barrel, equal to the present price of the higher grades of Michigan crude.

The oil will be trucked to Muskegon. Salem field producers claim a daily potential of approximately 10 000 bbls. for their wells. There is said to be a possibility the Old Dutch refinery later might increase its take from the Salem field to its plant capacity of 4,000 bbls. a day.

To Build Small Refinery Near Wichita Falls

FORT WORTH, Tex.—Claude Senn, formerly superintendent for Sunshine State Refining Co. at Wichita Falls, Tex., and later with American Refining Co., in that city, is preparing to start construction on a small refinery 2 miles southeast of Wichita Falls, on the Henrietta Highway. Crude for the plant will probably be hauled from Jack and Montague counties.

Building of Pontiac Refinery Started as Corpus Christi

CORPUS CHRISTI, Tex.—The new Pontiac Refining Co.'s 4,000-bbl. skimming plant is under construction at Corpus Christi. Foundations have been completed for the units, and fabricated steel furnaces and vessels will be erected shortly. The Pontiac refinery site is located on the Corpus Christi Ship Channel between the new plant of the Barnsdall Refining Co. and the large Southern Alkali Corp. plant.

Barnsdall Corpus Christi Plant Nears Completion

CORPUS CHRISTI, Tex.—Construction is nearing completion on the 5,500-bbl. plant of the Barnsdall Refining Co. at Corpus Christi. The new refinery, located on the Corpus Christi Ship Channel will crack heavy Placedo crude. Initial operation is set tentatively for December 1. Barnsdall is reported to have contracted for the sale of all gasoline refined in the plant to British markets.

Natural Gasoline

California Natural Gasoline Output Higher in August

Natural gasoline production in California during August increased 1,000 bbls. daily to 41,000 bbls. daily and refinery utilization also increased 1,000 bbls. daily to 36,000 bbls. daily, according to the report prepared by the Bureau of Mines for that month. During the first eight months of 1937 production and refinery utilization each increased 2,000 bbls. daily to 40,000 bbls. daily, and 32,000 bbls. daily, respectively. Stocks of natural gasoline amounted to 2,624,000 bbls., 79,000 bbls. under last month, but 455,000 bbls. over August, 1936, stocks.

Daily average production of liquefied petroleum gases decreased from 1,867 bbls. to 1,754 bbls., of which 499 bbls. were produced at refineries in August. Daily average sales decreased from 1,930 bbls. to 1,826 bbls. Still gas production during the month amounted to 2,215,457,000 feet, equivalent on a B.t.u. basis to 577,359 bbls. of fuel oil.

NATURAL GASOLINE PLANT OPERATIONS, AUGUST, 1937

Field—	Gas treated (thou. cu. ft.)	Natural gasoline produced (gallons)
San Joaquin Valley:		
Elk Hills	57,060	122,792
Kettleman Hills	10,019,638	15,519,686
Midway-Sunset	1,495,763	2,400,291
Mountain View	734,855	854,493
Miscellaneous	3,493,254	2,348,444
Coastal district:		
Elwood	762,257	1,022,036
Rincon	130,739	206,738
Santa Maria	170,004	424,404
Ventura Avenue	3,211,971	4,316,140
Miscellaneous	661,378	598,108
Los Angeles Basin:		
Brea-Olinda-Coyote	320,522	1,138,276
Dominguez	1,911,326	2,644,871
Huntington Beach	1,569,007	3,611,048
Inglewood	300,847	446,320
Long Beach	1,562,388	7,298,591
Playa Del Rey	294,298	1,100,088
Richfield	223,809	535,201
Rosecrans	387,768	610,814
Santa Fe Springs	2,290,470	5,301,534
Seal Beach	491,729	759,440
Torrance	105,251	246,748
Miscellaneous	770,162	1,523,878
Total (all fields)	30,964,496	53,029,885

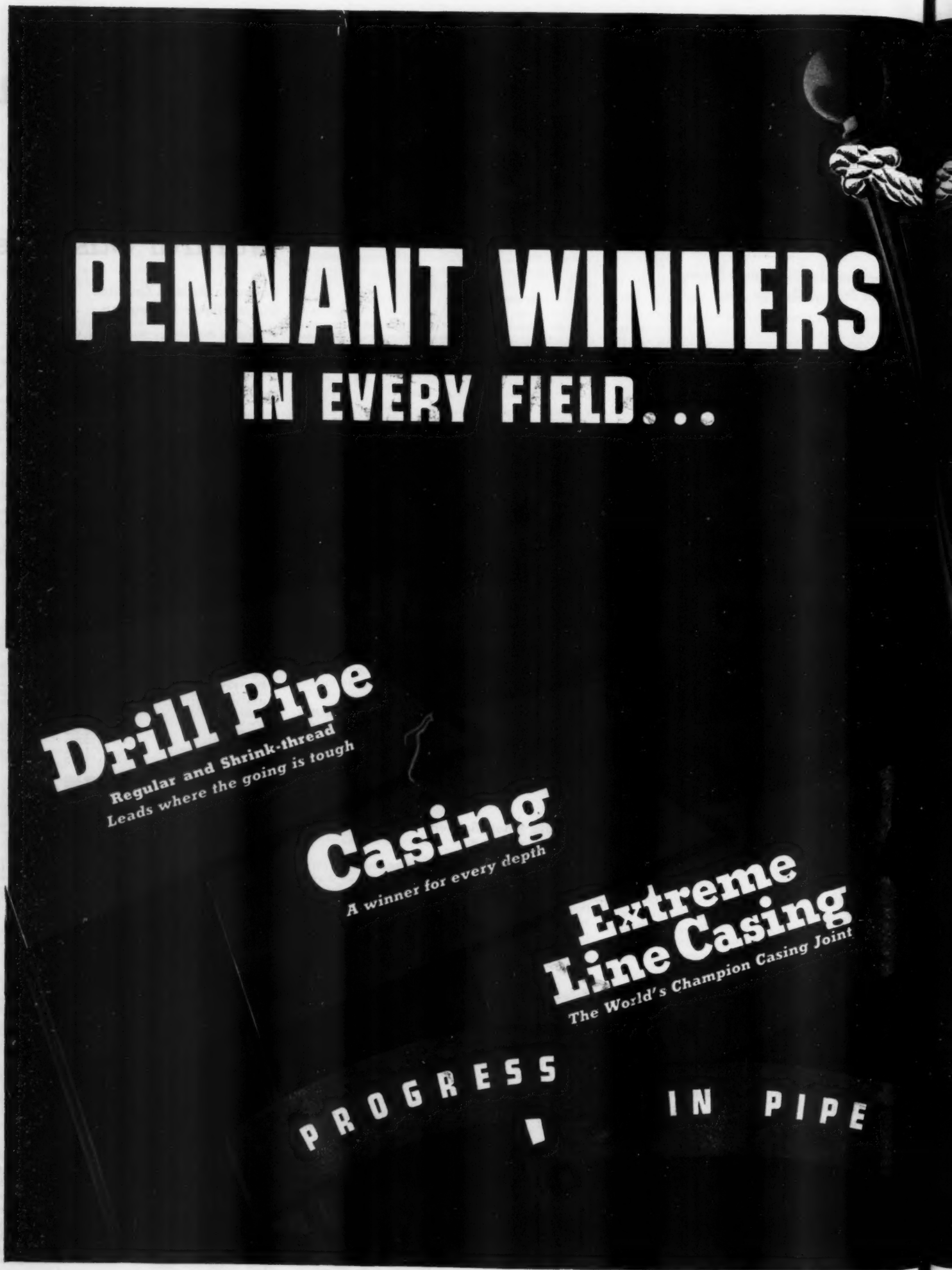
DISTRIBUTION
(Gallons)

Stocks beginning of month	2,199,676	
Production during month	53,029,885	
Delivered to refineries		52,095,805
Delivered to jobbers, brokers or blenders		812,748
Blended at plants for production of motor fuel		8,038
Losses		110,885
Stocks end of month		2,202,085
Total	55,229,561	55,229,561

Liquefied petroleum gas prod. 1,698,898 = 40,450 bbls.
Motor fuel produced 13,968 = 333 bbls.

Richfield Reconditioning Old Long Beach Plant

LOS ANGELES, Calif.—Richfield Oil Co. is rushing work on its long idle No. 4 absorption gasoline plant to process gas from the new Long Beach Harbor field. The plant, ready for operation October 1, will be capable of handling 5,000,000 feet of gas daily with a daily output of 20,000 gallons. Richfield's gas from its large group of Signal Hill wells, approximately 3,500,000 feet, heretofore treated by Lomita Gasoline Co., will be transferred to the new plant.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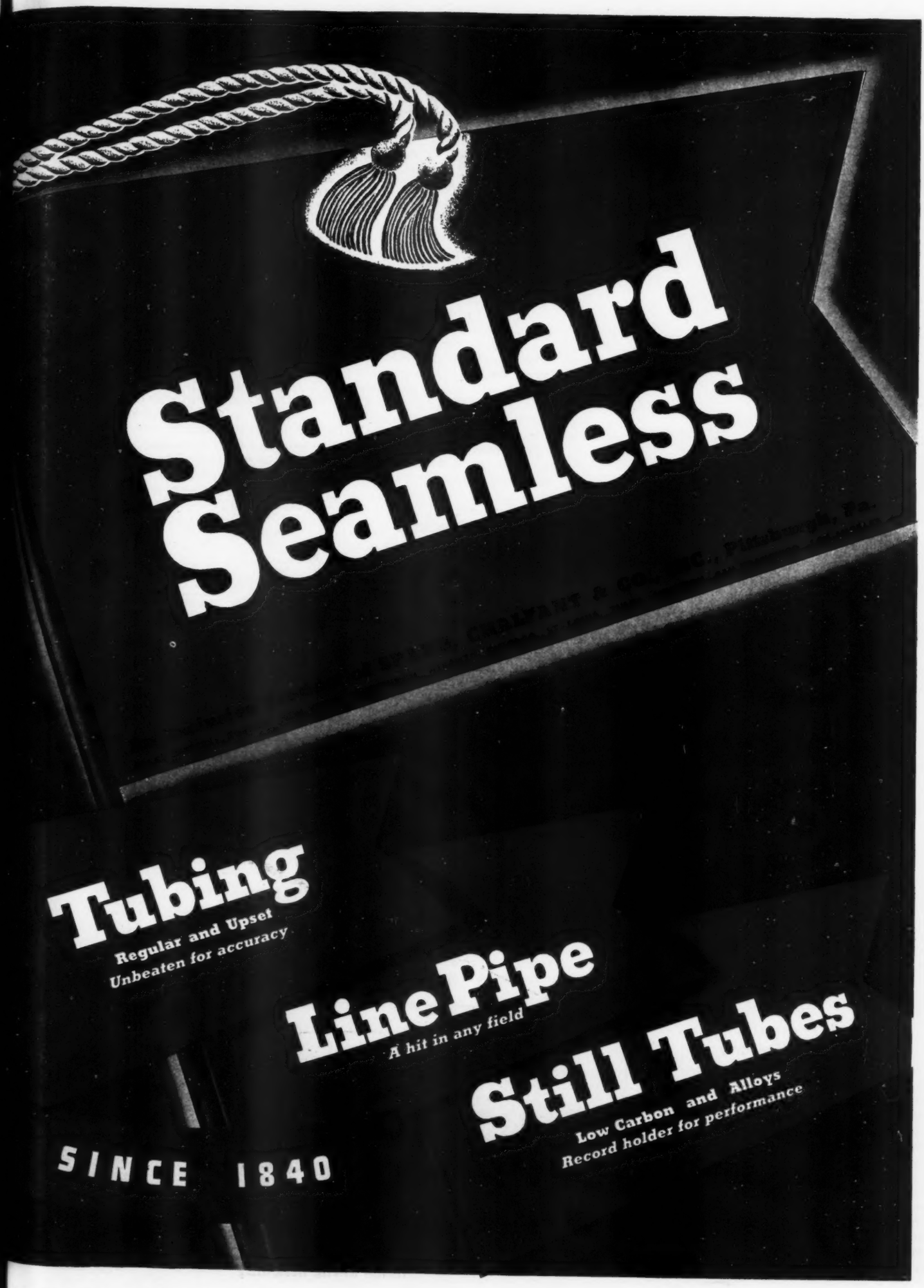
IN EVERY FIELD...
Drill Pipe
Regular and Shrink-thread
Leads where the going is tough
Casing
A winner for every depth
Extreme
Line Casing
The World's Champion Casing Joint
PROGRESS
IN PIPE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Seamless
Tubing
Regular and Upset
Unbeaten for accuracy
Line Pipe
A hit in any field
Still Tubes
Low Carbon and Alloys
Record holder for performance
SINCE 1840

Oil News from Foreign Lands

Imports by United Kingdom

Petroleum imports by the United Kingdom continued to hold at their advanced rate for 1937 through August. During the eight months the United Kingdom's petroleum imports totaled 60,148,202 bbls. compared with 56,611,277 bbls. for the same period in 1936. The increase in value is even more substantial reflecting improvement in prices. A value of $161,312,134 has been assigned to petroleum imported by the United Kingdom during the first eight months compared to $124,458,701 in the 1936 period.

The United States continues to rank third in the list of supplying countries. The increase in petroleum shipments from the United States to the United Kingdom, amounting to 26,119,037 bbls. through August this year against 18,477,870 bbls. for the same eight months last year, has played an important part in the general rise of oil export trade in this country.

The United States is the largest supplier of lubricating oil and wax to the United Kingdom, but ranks no higher than third in other products with the single exception of asphalt. The United States is second to the British West Indies (Trinidad) as a source of the United Kingdom's asphalt and bitumen imports. Rumania, Mexico and Iraq are the only supplying countries shown to have shipped less petroleum products to the United Kingdom during the first eight months than for the same period in 1936. All other sources of supply have increased their shipments to the United Kingdom with Iran and the United States leading in this respect.

The following table shows the total shipments in barrels and value in dollars from the various supplying countries during the first eight months of 1937 and 1936:

(Figures in thousands)

Source—	Imports in barrels Jan.-Aug.		Value in dollars Jan.-Aug.	
	1937	1936	1937	1936
Netherland W. Indies	21,586	21,124	53,274	43,138
Iran	12,651	10,579	34,697	21,665
United States	6,776	5,247	26,119	18,477
Rumania	3,172	3,622	7,886	7,271
Mexico	2,867	3,774	6,550	6,473
British West Indies	2,849	2,384	8,138	7,159
Iraq	2,154	2,858	3,097	4,195
Russia	1,706	1,676	5,503	5,068
Peru	1,474	1,460	3,250	2,589
Venezuela	1,455	1,290	2,426	1,679
Netherland E. Indies	509	311	1,787	1,241
Other British	498	510	1,203	1,143
Other foreign	2,446	1,771	7,376	4,443
Totals	60,148	56,611	161,312	124,458

Rumanian Drilling

Extent to which Rumanian crude exports have declined is disclosed in statistics covering the first eight months of 1937 during which shipments abroad totaled 3,895,000 tons compared to 4,398,000 tons for the same period last year.

Rumania has suffered substantial losses in petroleum trade with Great Britain which took only 24,627 tons of Rumanian crude during the first eight months compared with 64,495 tons in 1936. Shipments to Germany were down even more at 33,529 tons for the first eight months compared to 108,034 tons.

The government has shown considerable concern over the dwindling petroleum export business and is attempting to take steps which will again elevate Rumania to its previous place of importance in world markets. Reduced production from Rumanian fields in the absence of new drilling and new discoveries is partially to blame for the slump in exports. Furthermore, Rumania's policy of demanding sound money for a high percentage of petroleum shipped abroad has turned considerable business into other channels.

Recently, Rumania and Austria completed arrangements whereby the former will again supply the bulk of the latter's petroleum requirements accepting all or a part of the settlement in partially finished iron goods. Dispatches from Bucharest state considerable expansion in new drilling will develop during the next few months. It is now possible for foreign companies to obtain acreage for exploration under terms more favorable than for the past few years.

Will Drill in Scotland

Anglo-American Oil Co., United Kingdom subsidiary of Standard Oil Co. of New Jersey, is to continue its oil search in the British Islands despite recent failure and abandonmnt of its first project at Hellingly, Sussex, England.

Rotary drilling equipment is now being moved to location near Dalkeith, Scotland, where the company holds prospecting license on approximately 7,500 acres of land. The location selected for Anglo-American No. 1 Midlothian is about 300 feet from an old test drilled between 1918 and 1922 by D'Arcy Exploration Co. The old test showed some oil and approximately 70 bbls. were recovered from the hole without shooting before mechanical failure and immediate necessity for a national crude oil supply was relieved by termination of the war.

The acreage to be explored by Anglo-American in Scotland was originally licensed to Midlothian Petroleum Syndicate and is shown under the name of that concern in the map of the British Islands published by The Oil & Gas Journal on December 31, 1936.

U.S.S.R. Exports at New Low

Soviet petroleum exports dipped to a new low in August totaling only 98,590 tons compared to 236,339 tons for the same month a year ago and to 135,822 tons during July, according to the United States commercial attache at Istanbul, Turkey, the port at which practically 100 per cent of U.S.S.R. shipments is registered. The poor showing in August coupled with previous declines from 1936 levels leaves U.S.S.R. petroleum exports for the first eight months at 1,203,497 tons. During the first eight months of 1936 U.S.S.R. exported 1,763,299 tons of petroleum, which was a new low since the nation became an important oil producer. Approximately 37 per cent of the petroleum products exported during the month consisted of heavy fuel oils and lubricating oils.

The volume and destination of the petroleum shipments during August follow:

(Figures in tons)

Destination—	Gasoline	Kerosene	Lube oil	Fuel oil	Total
England	5,741	2,471	17,213	.....	25,425
France	.....	.....	5,771	.....	5,771
Germany	9,360	.....	1,491	8,207	19,058
Italy	.....	.....	2,367	14,323	16,690
Japan	9,370	.....	.....	.....	9,370
Norway	.....	.....	8,372	.....	8,372
Spain	.....	.....	.....	13,904	13,904
Total	24,471	2,471	35,214	36,434	98,590

Lubricating oil exports from U.S.S.R. are holding approximately level with the same period last year, but there is a sharp drop in fuel oil and kerosene traffic compared to August, 1936. In total shipments for the first eight months, all products have suffered declines. The following table shows the exports by products for August this year and last and the accumulative total for the first eight months of both years:

Product—	August		Eight months	
	1936	1937	1936	1937
Lube oils	35,759	35,214	260,016	166,390
Fuel oil	77,113	36,434	830,849	592,651
Kerosene	21,646	2,471	216,210	131,319
Gasoline	26,873	24,471	449,932	313,137
Asphalt	.....	.....	5,684	.....
Paraffin	.....	.....	608	.....
Total	236,339	98,590	1,763,299	1,203,497

Iran Production Record

Record crude production of 939,000 tons (approximately 7,089,450 bbls.) was withdrawn from fields of Iran in July by Anglo-Iranian Oil Co., Ltd. The daily average output of 228,692 bbls. set another all-time record for Iran production, 60,000 tons more than in June, and compares with 696,000 tons produced during the same month in 1936. The July production record sustained general increases registered throughout the year and the first seven months totaled 5,688,000 tons (about 42,944,400 bbls.), compared to 4,767,000 tons, or 35,990,850 bbls. during the first seven months of 1936, a gain of more than 16 per cent.

The production by months follow in tons:

Month—	1937	1936
January	750,000	661,000
February	631,000	640,000
March	838,000	663,000
April	824,000	616,000
May	827,000	768,000
June	879,000	723,000
July	939,000	696,000
Totals	5,688,000	4,767,000

Conversion factor: One ton equals 7.55 bbls.

In the Kirkuk field, Iraq

ENGINEERING AND OPERATING SECTION

Presenting modern developments in operation of producing properties, refineries and gasoline plants, and pipe lines, including petroleum research in the field and laboratory

This Week

AUTOMATIC REGULATION FEATURE OF SHELL LINE—By T. P. Sanders ..... **Page 92**

Shell Oil Co.'s new 258-mile line is now operating under a unique system of automatic pressure control, and in order to increase the operating efficiency unusual temperature control equipment is in use. Means of synchronizing the operations of the four stations is described and advantages pointed out.

PROGRESS IN METALS—By W. L. Nelson ..... **Page 94**

Addition of small amounts of aluminum to alloy steel tubes has been found to greatly increase their resistance to sulfur corrosion and high-temperature rusting. Properties of these steels are discussed; also uses of chromium steels in the oil industry.

INFLUENCE OF CONNATE WATER ON ESTIMATION OF OIL RESERVES—By Roy L. Ginter ..... **Page 97**

The total reserves of oil as well as the ultimate recovery is of national interest; and although the amount of formational water in the oil sand has no direct connection with the ultimate recovery, it is a factor to be considered in calculation of the total reserve.

OLD WELLS PRESENT PROBLEM IN REPRESSURING PROJECT—By J. P. O'Donnell ..... **Page 103**

Operators repressuring properties in old fields of Pennsylvania are faced with the problem of old abandoned wells interfering with their repressuring programs. Plugging these wells is expensive, so that operators must clean out and use all old wells that can be worked into the pattern.

ESSENTIALS OF FUEL UTILIZATION IN DIESEL ENGINES OF AUTOMOTIVE TYPE—By Robert Best ..... **Page 107**

The automotive type diesel engine in recent years has assumed a much more important role due to low fuel cost, and as manufacturers continue to improve their product diesel fuels must also be improved. Important properties of the fuels are described and some effects of fuels on diesel engine operation explained.

ILLUSTRATED OPERATING IDEAS ..... **Page 109**

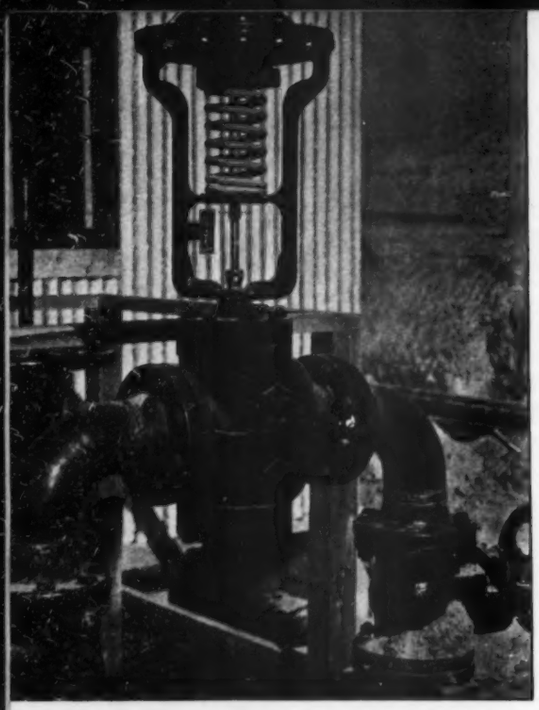
Gears for controlling valve. Portable gasoline engine for cleanout work. Unusual water pump actuated by pull rod. Shop-made ceiling fan.

QUESTIONS ON TECHNOLOGY — By C. K. Francis, Ph. D. ..... **Page 111**

Influence of water in lime-base greases on lubrication. Iodine in oil well waters and methods of recovery. Viscous, non-viscous and bright stocks defined.

PROBLEMS FROM READERS—By L. G. E. Bignell **Page 112**

Ratio of cable tool to rotary drilled wells. Meters for measuring gas and oil. Radio in oil prospecting work. Oil development activities in Florida. Magnetometer used for making well locations and reconnaissance.



Regulator used for controlling the temperature of the booster pump's charge by means of recycled hot oil

Automatic Regul Feature of Shell

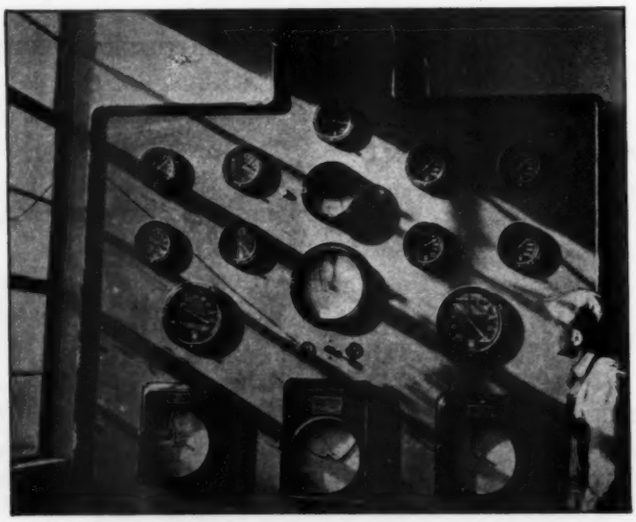
By T. P. SANDERS

Pump stations on Shell Oil Co.'s new 258-mile crude oil transmission line (The Oil and Gas Journal, February 18, 1937, page 42), which was completed early this year in California's San Joaquin Valley, are now operating under a unique system of automatic pressure control. Unusual temperature control equipment is also in use. While the predicted wholly-automatic station of the future is still a dream, the present trend toward automatic- and remote-control equipment is noteworthy. Especially interesting in relation to this trend is the fact that most automatic equipment is being installed not to reduce labor costs, as might be thought, but to obtain more constant operating conditions and greater efficiency than could be procured with manual labor. The new Shell line may well be cited as an example of this use of automatic equipment. The number of employes at the new stations is the same as at older stations, but the greater operating efficiency amply justifies the expenditure for automatic installations.

Most notable of the automatic-control features is the method by which the speed of the pumps at the initial and booster stations is controlled and synchronized. At the initial station the speed is governed by merely setting an indicator hand on a Stabilog control system at the desired rate of oil transmission. The pumps at the succeeding stations then automatically adjust themselves to the speed of the initial pumps. In this way the entire line from Bakersfield to Caliola is operated. From Caliola to the refinery at Martinez the new line parallels an older Shell line and on this section old stations have been remodeled to serve both old and new lines.

Automatic synchronism of the new stations is accomplished by fairly simple means. The rate of oil transmission, which is decided upon at the dispatcher's office in Los Angeles, is telephoned to the attendants at the initial station, located at Bakersfield. Here, after switching in the proper storage tank to give the desired type of crude oil, an attendant sets the control hand on the control system. This instrument operates in conjunction with an orifice meter which measures the oil discharge from the pumps. Since the differential pressure across the orifice plate is a function of the rate of flow, it is this differential pressure that is used to regulate the speed of the pumps. When the rate of oil transmission tends to fall below the rate at which the control hand on the meter has been set, the corresponding drop in differential pressure immediately actuates an air-operated diaphragm valve on the steam line. More steam is supplied to the turbines, so that the pumps are driven faster to increase the rate of transmission to the desired rate. This control equipment not only facilitates changing the rate of transmission, but also makes it possible to operate at a constant rate under changing conditions with a minimum of attention.

Speed regulation at the booster stations is simpler and completely automatic. The speed of the pumps is regulated by the pressure on their intake manifolds. The regulating equipment is adjusted to maintain a pressure of 25 pounds at the intake of each booster station.



Main control board in the Bakersfield station on Shell's recently constructed pipe line. In the center is the orifice meter which measures, controls and records the rate of oil transmission

If the speed of the pumps at the initial station is increased, more oil is delivered to the second station. This tends to build up a greater pressure on the second station's intake. The effect of this increasing pressure, however, is to open wider the diaphragm valve on the steam line, so that the turbines are driven faster, the speed of the pumps increased, and the oil is discharged from the station at exactly the same rate at which it is being received.

The flow diagram of Shell Oil Co.'s Bakersfield station, shown on the opposite page, is typical of the other stations along the 258-mile line. Unusual automatic pressure control and remote-control equipment greatly aid operation of these stations.

An important advantage of this automatic synchronizing arrangement is the protection it affords the pumps in case of interrupted oil supply at their intakes. Serious damage to the centrifugal pumps would result if their intakes were not kept flooded. If an interruption should occur, due to a line break or similar accident, the drop in pressure on the intake manifold will immediately shut off the steam supply, and the pumps will stop before destruction can take place.

On the older pipe line stations between Caliola and Martinez the intakes of the pumps are kept flooded by the common method. This makes use of floating tanks at each station. When the station upstream begins to operate at an accelerated rate the oil begins to accumulate in the floating tanks, and it is the duty of the attendant to keep the speed of his pumps approximately equal to the speed of the upstream pumps by maintaining constant oil level in floating tank.

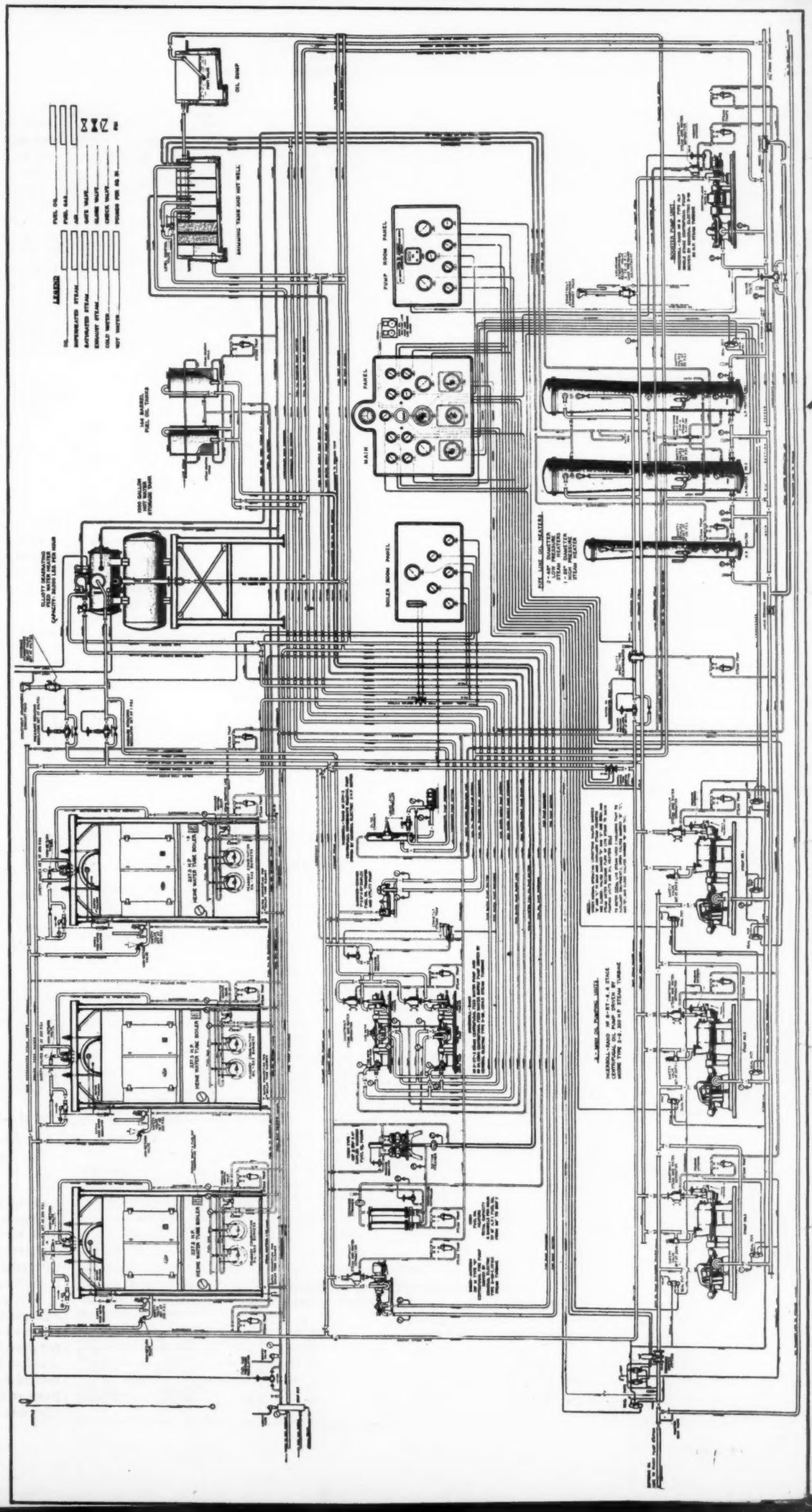
Much of the oil handled by the new line is heavy and requires heating for efficient operation. Temperature control is to a large extent automatic. Before the oil reaches the main line pumps at the initial station

ation Line

it is forced through exhaust-steam heaters by a smaller booster pump. Since the booster pump cannot operate efficiently on heavy unheated oil, part of the oil leaving the heater is recycled back to its intake to raise the temperature of its charge. In order to reduce the quantity of recycled oil to the minimum and to allow the booster pump to operate at a constant temperature, an automatic control is used. This is set at the temperature most suitable for the kind of oil being handled, and this temperature is maintained by regulation of the quantity of oil recycled. A diaphragm valve on the recycled-oil line is actuated by the controller.

Heating of oil on the new line is an economical process. Under normal operation only the exhaust steam from the pumps is used in the heaters. Each heater contains 1,160 1-inch O.D. tubes. The rate of heat transfer is therefore very rapid, and this permits using the heaters as steam condensers while they are being used for heating the oil. The heaters are installed outside each main building of the four stations and are provided with a raised platform, or catwalk, to make accessible all valves and fixtures.

Vacuum pumps remove the condensate from the heaters while steam jets exhaust the uncondensed gases. In this way a vacuum of about 15 inches of mercury is held on the steam exhaust manifolds from the pumps. This vacuum increases the effective steam pressure in the station by 7 or 8 pounds. Many pipe line stations use exhaust steam to heat oil, but in using heaters as condensers in order to increase the efficiency of the steam generating plants in the same operation that the oil is heated, the new Shell line represents an efficient application of the practice.



Progress in METALS

By W. L. NELSON

Chromium Steels Have Wide Use in the Oil Industry

The characteristic properties of the chromium steels are extreme hardness and a resistance to corrosion. The hardness is due largely to the fact that chromium causes the precipitation of metallic carbide particles throughout the steel. In general, this causes a tendency toward brittleness and hence it is common to find that other alloy elements, notably nickel, are used with chromium to maintain a satisfactory ductility and freedom from brittleness.

The extreme hardness and strength of the chromium steels is illustrated by Table 1, which shows characteristic mechanical services of chromium steels.

Although the chromium or stainless steels are resistant to many corrosive actions, only two major services of the petroleum industry are filled by the chromium steels. One of these is the excellent resistance of these steels to oxidation or rusting both at room temperature and at furnace temperatures, and the other is the resistance to sulfide corrosion. With the possible exception of silicon, no other alloy element is as satisfactory as chromium for increasing the resistance to oxidation or rusting. Thus, chromium is a universal constituent of high temperature steels and fortunately the chrome steels also retain their strength at elevated temperatures. However, in this latter respect chromium is not as effective as molybdenum.

Table 2 illustrates the widespread use of chromium as a constituent of high temperature steels. All of the widely used high-temperature steels contain chromium, with the exception of a few silicon steels and irons. Chromium is also unique in its ability to improve the resistance of steel to sulfide corrosion. However, sulfur corrosion as encountered in the petroleum industry is not a condition that can be easily evaluated. For this reason it is impossible to assign definite values of the effect of chromium in this respect although the chromium steels are usually superior to other steels.

The extreme hardness and wear resistance of the chromium steels when also alloyed with nickel for ductility, makes these steels particularly suited for oil-field services. Table 3 is a partial list of the nickel-chromium steels that are finding widespread use. All of these steels are used in the oil-quenched and tempered condition except S.A.E. 3115 which is used in the carburized and case-hardened condition.

TABLE 1—MECHANICAL SERVICES OF THE CHROMIUM STEELS

Uses of chromium steel—	% Cr	% C
Wearing parts: shoes, stamps and slides on planing machinery	0.4-0.5	0.8-0.9
Chisels, drills and saws	0.5-1.0	1.0
Balls and roller bearings	0.6-1.5	1.0
Armor plate, projectiles, safes, vaults	0.6-2.0	0.5-0.9
Files	0.4-0.5	1.3

Aluminum Lends Corrosion Resistance to Still Tubes

The addition of small amounts of aluminum to the standard chromium, molybdenum, and silicon tube steels, greatly improves the resistance to sulfur corrosion and high-temperature rusting. Such materials are also less affected by cold work—that is, the rolled ends of tubes do not corrode more rapidly than the rest of the tube, as is frequently the case with regular 4-6 chrome-moly tubes.

Most of the development in intermediate or low percentage alloy steels for tube manufacture has taken place since 1931. Before that time the 18-8 variety of stainless steel and the 4-6 chrome steel had been used to a small extent. In 1931 the use of low percentages of chromium along with molybdenum and some silicon attracted attention and in 1934 and 1935 the use of chromium contents up to 3 per cent became common. Thus, the chromium steels were recognized as superior prior to 1931, the addition of silicon along with chromium proved to be useful from 1931 to 1935, plain silicon steels such as Silmo were introduced in 1936 and now even a better combination consisting of chromium, silicon, aluminum and molybdenum is being announced by the Timken Co., of Canton, Ohio. The composition of one such tube material is:

Carbon	0 15 Max.
Manganese	0 30 Max.
Silicon	1-2
Chromium	4-6
Molybdenum	0 4-0 6
Aluminum	0 5-0 9

This material has been used for about five years side by side with regular 4-6 chrome molybdenum tubes for comparison under identical conditions. Three major services were investigated, namely: (1) Heat exchanger tubes operating at 900° F. when in contact with high sulfur crude oil, (2) cracking still tubes operating at 925° F. and 425 pounds per square inch on high sulfur West Texas crude oil, and (3) high temperature tube service at 1,340 to 1,490° F. for the purpose of studying the stability of the material at extreme temperatures. During several years of investigation the material has been found to be about twice as resistant to sulfur attack as regular 4-6 chrome moly steel, far more resistant to oxidation or scaling at high temperatures, and about completely stable with regard to grain growth or change in strength if the temperature does not exceed 1,490° F.

Fig. 1—Top, original structure of the 5 per cent Cr.-Mo.-Si.-Al. tube; bottom, structure after 10,000 hours of service

The photomicrographs illustrated in Figure 1 indicate the stability of this new tube alloy with respect to heat. The specimen that has been used for over 10,000 hours at 925° F. is scarcely different than the original material. Whereas the structure of regular 4-6 chrome moly steel after normalizing, consists of hard sorbitic martensite, the new alloy has a softer ferritic structure.

TABLE 2—CHROMIUM ALLOYS FOR HIGH TEMPERATURES

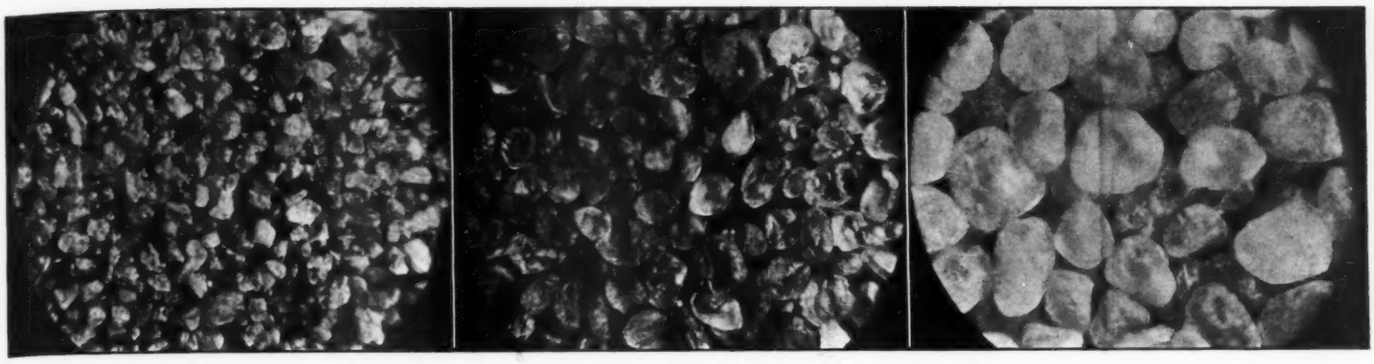
Name—	Type of material	Approx. comp., per cent Cr	Ni	Si	Others	Working temp. deg. F.	Relative* oxidation resistance	Service—
Meehanite	Cast iron	0.5	.....	1.3	.....	800-1200	.....	Convection section castings
Ni Tensyliron	Cast iron	0.5	1-4	1.2-2.7	.....	800-1200	.....	Convection section castings
Sicromo I	Steel	1.0	0	1.25	0.5 Mo	1000-1200	1.19	Tubes and bends
D M	Steel	1.25	0	0.75	0.5 Mo	1000-1200	1.3	Tubes and bends
Causal metal	Alloy iron	1.5	18-21	2.2	4.5 Cu	900-1300	.....	Firebox and still castings
Croloy 2	Steel	2.0	0	0.45	0.5 Mo	1000-1200	1.46	Tubes and bends
Ni Resist	Alloy iron	3.5	14.5	1.5	6 Cu	900-1400	.....	Firebox and still castings
4-6 Chrome Mo Si	Steel	5.0	0	1.5	0.5 Mo	1000-1300	17.0	Tubes and bends, with sulfur
Croloy 9	Steel	9.0	0	.....	1.5 Mo	1000-1300	17.0	Tubes and bends, with sulfur
13 Chrome	Steel	13.0	0	.....	.....	1100-1400	84.0	Cast tube supports
18-8 chrome nickel	Steel	18.0	8	.....	.....	1100-1400	Very high	Tubes and bends, with sulfur
25-12 chrome nickel	Steel	24-28	10-12	.....	.....	1300-1800	Very high	Cast tube supports
15-35 nickel chrome	Steel	15.0	35	.....	.....	1500-2000	Very high	Cast tube supports
Nichrome	Alloy	15.0	60	.....	15 Fe	1600-2000	Very high	Instruments, etc.
Nichrome IV	Alloy	20.0	80	.....	.....	1800-2100	Very high	Instruments, etc.

*Relative to carbon steel taken as 1.0.

TABLE 3—CHROME STEELS IN PRODUCTION

S.A.E. No.	Service	Approx. composition— Carbon	Cr	Ni	Elastic limit (thou. of lbs.)	Brinnel hardness
3115*	Bit and reamer cutters, cutter pins, fishing taps and dies, slips, bearings on crown block, valve seats and bodies	.15	.6	1.2	85-155	250-360
3120-3130	Sucker-rods, pins on traveling block	.25	.6	1.2	70-100	170-240
3135-3140	Side bars on rotary chain	.37	.6	1.2	80-120	210-290
3140 or X 3140	Valves, studs and bolts, reamer bodies	.4	.6	1.2	85-120	230-290
3150	Drill collars, kellys and tool joints, shafting on rotaries	.4	.8	1.2	100-130	255-320
	Piston rods for abrasive wear	.5	.6	1.2	100-140	250-350

*Carburized.



Cromwell sand (pay) Pontotoc County, Okla. *Wilcox sand (pay), Oklahoma City* *St. Peter sand, Illinois outcrop (X25)*

Influence of Connate Water on Estimation of Oil Reserves

By ROY L. GINTER
Consulting Chemist, Tulsa, Okla.

The oil industry is aware of bottom and edge water types of formational water and until recently this type of water was considered one of the evils of the industry. Now this type of water, in many fields under hydraulic and gas-energy control, is utilized to augment the ultimate recovery of crude oil.

We are concerned in this discussion principally with the type of formational (interstitial) water found associated with the oil through the vertical section of the sand body containing the capillary void system. The majority of oil sands have one character in common: they contain a large number of small pores or capillaries. Although sand bodies vary over a wide range with respect to friability, porosity and permeability, an appreciable amount of interstitial water is usually found distributed through the vertical range of the sand body. For examples, references are made to the cemented sand bodies of Bradford, Pa., to the fairly well cemented sand bodies of the Pennsylvanian series in the Mid-Continent, to the friable young, fine-grained sand bodies of the Gulf Coast and the Los Angeles Basin. The exceptions to this generalization on sand bodies will be considered later in this discussion.

In the past it has been the common practice to calculate recoveries by checking the oil and gas produced against the void space of the reservoir and in estimating the total reserve of oil and gas in place, to consider the voids filled with oil and gas only. Obviously, if the amount of formational water, distributed through the vertical sand body section is significant, the per cent recoveries have been much too low and this type of water should be considered in estimating the total reserves of oil and gas in place, if the void space of the reservoir is used in the method of calculation.

Recently Katz[1] and Schilthuis,[2] using production records, formation pressures and the analyses of the bottom-hole samples, offered a mathematical solution, independent of porosity, for the computation of the total oil and gas reserve in place. The author feels the void space of the reservoir will probably be considered for some time in the future, in estimating the total reserve in place over large areas, particularly with the existence of semi-proven districts over the area. Also methods using the void space of the reservoir will serve as a check when the sufficiency of the field data is questioned or the irreguarity of the production practice adds difficulties to the mathematical method of calculating the reserve in place.

Data on Formational Water

The water saturation determinations of various laboratories agree very well, working with sand cores from the same district. However, the amount of water contamination due to the water in the hole during the coring was not known until recently.

Pyle[3] made a careful study of a rotary core, taken in the Los Angeles Basin, from 3,068 to 3,117 feet.

A standard mud using dextrose was prepared and circulated in the hole before taking three 18-foot cores of the sand body. The laboratory samples were placed in sealed tins. The usual core tests were made along with the dextrose determinations. Thus the necessary information for the drilling water or coring water correction was at hand. The connate (interstitial) water from 22 samples was found to range from 21.4 to 61.2 per cent, the average being 37.9 per cent. The porosities of this friable sand body ranged from 24.8 to 36.2 per cent, the average being 29.7 per cent. The initial production from the wells surrounding this test was from 400 to 500 bbls. per day from the sand body Pyle examined. Later it is learned this test well was finished in a lower zone, below the interval cored and studied[4] and the production of the surrounding wells, producing from the interval studied by Pyle, is cut 5 per cent with water. The source of this water is not definitely known.

The Pyle and Jones paper contains other interesting information. In their Table 5, for instance, there is a general relation between the amount of drilling water contamination and the porosity. The graph, Figure 1, shows drilling water (per cent of total water per 100 grams of dry sand) plotted against net effective porosity per cent (exclusive of connate or interstitial water).

Lewis and Horner[5] record interesting discussion on interstitial water and water saturation data from the core analyses of the Bradford, Pa., sands. A study of four wells, located at the corners of a rectangle, 380 feet by 480 feet, was made, using water as the coring fluid in three of the wells and oil as the coring fluid in the fourth. Their results show contamination from the water in the hole is negligible. Valuable data on per cent water saturation are shown for 29 Bradford cores. The water

The total reserves in place, as well as the ultimate recovery is of national interest. The industry, depending upon the ultimate for return on investment, depends no less upon the total reserves in place and the condition of its occurrence for conservative estimates of return on investment.

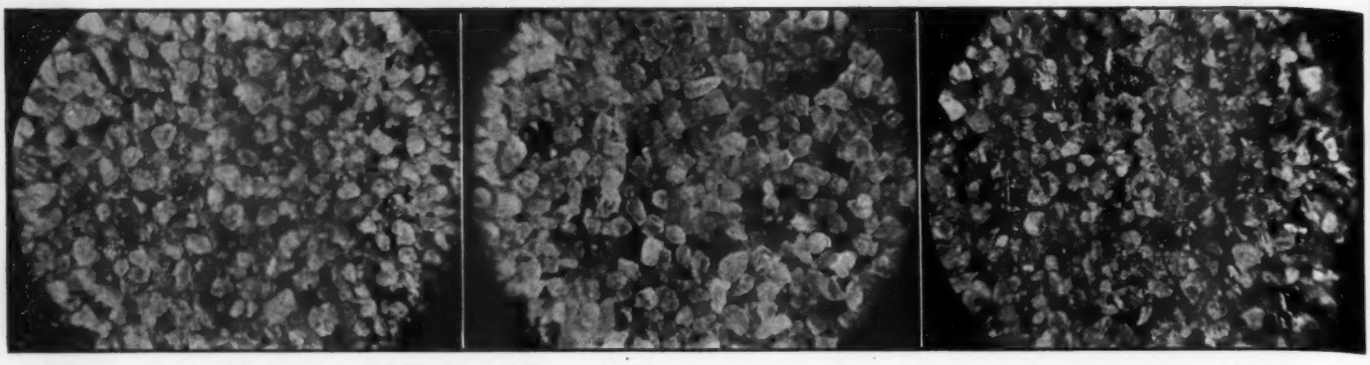
Although involved methods for the calculation of total reserves in place, independent of porosity measurements, do exist, the old method of using reservoir void space will probably be used for some time in the future, particularly in the estimate of total reserves over large areas.

Obviously the amount of formational water in the oil "pay" has no direct connection with the ultimate recovery but it is a factor to be considered in the calculation of the total reserve, using the reservoir void space method.

Investigations that have been made indicate:

1. There is an appreciable amount of water distributed through the vertical section of sand bodies that have small pores and classed as capillary void system of porosity and that this condition appears independent of the other oil sand characteristics.

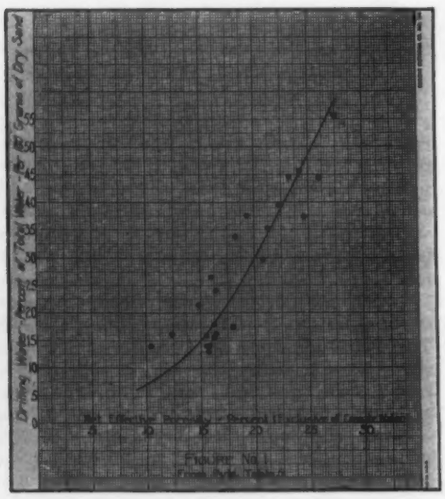
2. There is not an appreciable amount of water distributed with the oil through the vertical sections of sand or lime formations that have large pores of the non-capillary void system of porosity.



Bartlesville sand (pay) Northeast, Okla. *Greta sand (pay) Victoria County, Tex.* *Los Angeles Basin sand (pay) (X25)*

saturation per cent figures ranged from 22 to 59 per cent.

One of the major companies of the Mid-Continent contributed the following information on water saturation from 10 Bartlesville cores taken in the Nowata district, Oklahoma. The weighted average water saturation was found to be 49.7 per cent for the 10 cores taken with water in the hole. One core of this sand body in the same area was taken with oil in the hole instead of water with the following results: 23 feet were cored, the first 19



feet were tight (permeabilities ranging from 0.02 to 6.0 millidarcys); the water saturation found for a weighted average of the first 19 feet of sand core was 45.5 per cent. It is seen the difference in the water saturation for the core taken with water and the one taken with oil is not great and can be neglected.

Bays[6] shows typical water saturation determinations, according to his experience in East Texas and in a Rocky Mountain field, in the following table:

	CORE DATA	
Ft. of penetration into pay zone	East Texas water sat. per cent	Western U. S. water sat. per cent
9	36 6	51 5
20	46 6	40 1
27	49.8	46.7

Bays mentions the error introduced in the calculation of the per cent of oil recovered on the basis of the void space of the sand body carrying interstitial formational water. He writes: "If a sand half filled with water yields 30 per cent of its total pore space in oil volume produced, then it has yielded 60 per cent of the actual oil in place and our efficiency of recovery is just twice what we previously assumed before the advent of connate water determination. Our oil, in place under ground, on the basis of the connate water conception, is considerably less than it was on the old assumption that all of the pores were filled with oil."

The author's water saturation data, in the following table, shows his results from 16 Bartlesville cores taken by the diamond core drill in the Nowata district, Oklahoma. One hundred ninety-nine good pay samples are grouped together and 96 thin bedded sand and shale samples are grouped together. The shaly samples were lean or barren with respect to oil. Although the author uses retorts, these water determinations were made by the Dean and Stark method. The determinations are not corrected for drilling or coring water.

BARTLESVILLE CORES, NOWATA DISTRICT, OKLA.

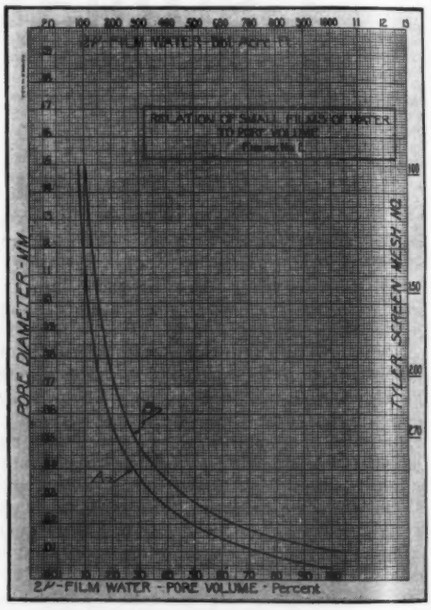
	Good pay sand data from 199 samples		Thin-bedded sand and shale data from 96 samples	
	Water saturation per cent	Porosity per cent	Water saturation per cent	Porosity per cent
Min.	10 5	16 0	24 6	3 0
Max.	67 2	23 9	100 0	17 6
Aver.	37 4	18 8	54 7	12 9

Other convincing data can be found in the literature that shows appreciable amounts of formational water associated with the oil through the vertical section of many sand reservoirs. The structural features and the reservoir types vary. The sand body characteristics, with respect to permeability, porosity and friability, vary over a wide range. However, as mentioned in the introduction of this paper, there is one characteristic common to the majority of oil sand bodies: they contain a rather large number of small pores, which behave as a capillary void system. Many of the sand bodies are lenses; a few are sheet sands.

Non-capillary Void Systems

Sand bodies and lime formations having non-capillary void systems, constitute the exceptions to the foregoing discussion. The writer has not found a measurable amount of water in Wilcox (Ordovician) sand cores taken from the better part of the pay, using the Dean and Stark method. The cores were exposed and not transported to the laboratory in tight containers. Had they been protected the author would have expected traces of water by this method under the assumption that the walls of the pores have an adhering film of connate water. The sand grains of the cores examined were large, well rounded and the pores are large compared to the pores of the sand bodies previously discussed. Some of the Simpson (Ordovician) sands, on structure, may be of finer grain, smaller pore and show, on well protected samples, a measurable amount of formational water distributed throughout the vertical section of the sand body. Water data from retorted samples should be corrected for chemical water.

In general, it can be said that the formational water in the Wilcox sand fields is bottom or edge water and assuming there is an adhering film of water on the walls of the pores, it is presumably of small magnitude in terms of pore volume per cent or barrels per acre foot. It appears the pores in this type of sand are sufficiently large to permit the gravity separation of oil, gas and water during the accumulation history of the sand body, and this concept is not changed by structural differences. The position of the bottom or edge water in the Oklahoma City and Lucien, Okla., fields show common communication across the tilted



Ordovician beds of sand, resulting in a water table, the elevation of which varies throughout the field due to differences in withdrawal rate and the permeability of the producing members. Per cent recoveries from sands of this type, checking the oil and gas produced against the void space of the reservoir should be reasonably accurate as interstitial water does not appear to be a factor.

The formational water of the lime-producing fields of the Mid-Continent is of the bottom and edge water type. The field evidence indicates the oil is accumulated on structure and is underlain with salt water in communication with the oil. The author's experience with cores from the Arbuckle and Oswald limes that made producers, show the porosity features are, in general, solution fissures along jointing planes and because of the non-capillary nature of these porosity features, it can be tacitly accepted that gravity forces were not handicapped in bringing about the separation of oil, gas and water during the accumulation history of the lime formation.

The void volume of a lime reservoir is not usually applicable in the calculation of total reserve in place because of the heterogeneity of the porosity features such as vugs, crevices and fissures.

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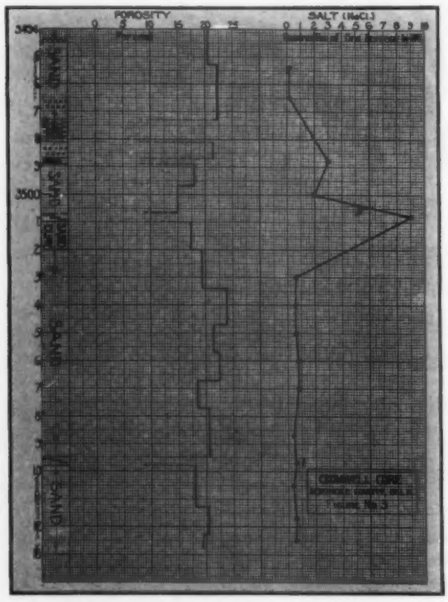
Lime cores seldom represent the best part of the pay section. Ultimate yields may be calculated from the well and lease behavior.

Theory

Theory based on physical and chemical principals often becomes practice tomorrow. The practical man, due to the nature of his work, is too often impatient with theory and for that reason, as well as to avoid digressions, the author will be brief.

The concensus of opinion is that sediments, other than wind blown, were saturated with water



at the time of deposition and geologic aeolian sediments, of course, would become saturated with water on the advance of the epeiric seas. Prerequisites for any oil formation, from the economic point of view at least, are space and ingress for the accumulation of petroleum. The laboratory measures these properties as porosity and permeability.

Just how lensed sand bodies with the usual capillary void systems and often with very little structural relief, accumulated their oil is a moot question. McCoy and Keyte[7] and Torrey[8] recently have dealt at some length with these questions. A number of others in the past have contributed interesting studies on these questions of petroleum genesis and the mechanism of accumulation.

Whatever the mechanism of oil accumulation was, it resulted in equilibrium being set up between the oil and water and their confining surfaces of the pore walls of the sand body carrying a capillary void system. The regulative factors of this equilibrium appear to be the energy relations of the interfaces of the oil-water-rock system. The proportion of interstitial water to oil, throughout the vertical section of the sand body and with the other factors of accumulation constant, may be found to vary in some inverse manner with the size of the pores. For a classical treatment of the principles of interface relations the reader is referred to Rideal[9] and Bartell.[10] For the recent application of these principles to problems of direct interest to the petroleum industry, reference is made to the following: Garrison,[11] Mack,[12] Nutting[13] and Bartell.[14]

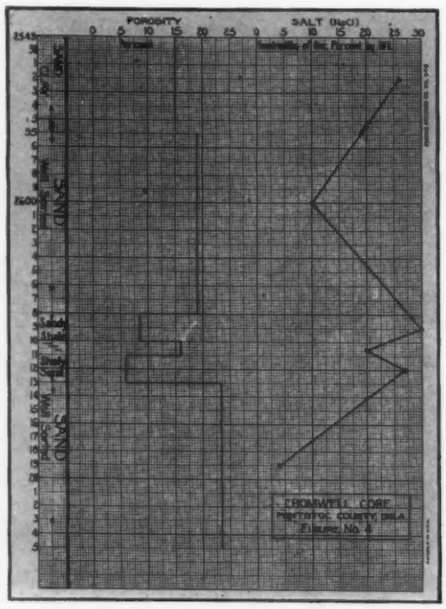
Doctor Garrison makes a critical physical analysis of the oil-water equilibrium in a sand body having various sizes of pores. A satisfactory mechanism of oil introduction is presumed. He demonstrates by diagrams and equations the oil-water rock interface relations. The decreasing of the radius of curvature of the oil-water interface or film is shown with the accompanying increase of differential pressure, the difference in pressures on the oil and the water side of the contact film, as the oil moves in the sand body from larger pores to smaller capillary pores or channels, the water receding from the pores previously occupied to still smaller capillary pores, until equilibrium is attained. Thus the larger of the pores or channels are filled with oil and the smaller of the pores are filled with water. Doctor Garrison may have provided sufficient egress for the water, if so, the author has failed to find it. The relation between the radius of curvature of the oil-water interface and the difference in pressure on the opposite side of the film is given:

$$Po - Pw = \frac{2I}{r'}$$

Po is the pressure on the concave or oil side of the film; Pw is the pressure on the convex or water side of the film; I, the interfacial tension of the oil-water contact; r', the radius of curvature of the contact film.

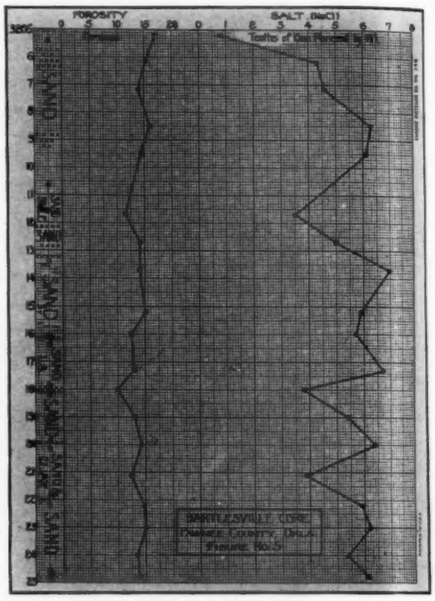
A demonstration of the reversal of this mechanism is shown, caused by producing oil from the sand body. It is shown that the oil moves from capillaries to larger pores and channels on to the well; the water following from very small capillaries to larger capillary pores, previously occupied by oil; the differential pressure in the above equation becoming smaller and smaller until in effect "Pw" exceeds "Po" with the result that at least a part of this interstitial water is produced along with the oil. Of course this demonstration is postulation, based on physical principals which may be the explanation of old producing sand bodies making water along with the oil, whereas these properties made very little if any water in the early and middle life history.

The field and laboratory core evidence, in connection with the lensed sand bodies of the Nowata district does not support the concept of an appreciable amount of this interstitial water being produced with the oil in the declining life of the field.



The records show very little water and on many leases, virtually no water was produced in the early and middle life of this 25- to 30-year-old field. The cores taken now show that in the neighborhood of 35 per cent of the pore space is occupied by formational water—"Interstitial" is an appropriate word used by Lewis and Horner. The author has not found any evidence that the water strings of these old wells were cemented. True the old field now, excluding "flood" properties, is in places producing appreciable amounts of water but the major portion of this water appears to be from leaking "water strings"[15] and not the water associated with the oil in the pores of the sand body.

Sixteen water analyses of water produced with the Bartlesville crude in Townships 24, 25 and 26n, Ranges 16 and 17e, Oklahoma, show the following concentrations, expressed in grams of total salts per liter: Three samples had concentrations ranging from 58 to 95; six samples had concentrations ranging from 27 to 54, and seven samples had concentrations ranging from 10 to 25. None of these



analyses are earlier than 1925. The evidence appears convincing that the Bartlesville connate water, although not very prevalent in this district, has been diluted with surface water to a large degree.

The Nowata field is a good example of a lensed Bartlesville sand body without bottom or edge water but this is not a generalization. Westward, in the old Burbank field one finds the wells were drilled through the sand body, finishing around 15 feet in the shale below and that the better part of the pay sand produced water-free oil. As the field was defined westward, some of the wells made water along with the oil and it was not uncommon to get a large volume of water on the lower southwest edge of the field. The author does not have information on the interstitial water in this field. The water produced in the old Burbank field appears to be edge water. An appreciable amount of interstitial water would be expected as the porosity would be considered a capillary void system.

The consensus of opinion, relative to sand bodies having capillary void systems, is that physical laws deny the theory of gravity separation of oil and water. However, the gravity separation theory appears tenable in the case of sand bodies and limes that have large pores, and are classed as noncapillary void systems, such as, for example, the Wilcox sand and the Arbuckle lime, both of Ordovician age, of the Mid-Continent.

In these formations the pores and porosity features are too large to retard gravity force and the oil moves into the structure at the expense of the water, the only water remaining consisting of a thin film on the walls of the pores. For example, a film of one or two microns (0.001 to 0.002 mm.) represents a small per cent of the volume of a large pore.

The purpose of the graph (Figure 2) is to show

(Continued on Page 105)

Old Wells Present Problem in Repressuring Project

By J. P. O'DONNELL

Middle district, Pennsylvania, operators who employ secondary recovery methods are beset by numerous problems, not the least of which are those occasioned by old and abandoned wells. This area of the first oil is widely covered with abandoned wells, holes that were drilled shortly after the Drake well was completed and were abandoned when their original owners found their production unprofitable or moved to more prolific fields.

In the early days of the oil industry there were no regulations covering the abandonment of wells and it was customary for the operators either to salvage what equipment they could or to leave the tubing and casing, if any, in the hole. In most instances, no casing was used but seed bags were attached to the tubing. Deterioration of these bags and corrosion of what casing was used allowed much surface to reach the producing sands.

This was the first deleterious result of the improper abandonment of old wells. The adverse effect of this flooding is a well known headache to many Middle district producers who have found it necessary to dewater their properties before producing them. Some wells have been pumped for years before producing a barrel of oil. However on the property diagrammed here, continuous pumping prevented flooding of the producing sands. The first well, since abandoned, was drilled on this property in 1859. The oldest of the present producing wells was drilled 58 years ago.

With the advent of repressuring, these old wells presented new problems. It is acknowledged that to obtain and maintain maximum production with efficient air control, a definite pattern using only new wells for introducing pressure media is essential. These always irregular and often closely-spaced old wells in only a few instances lend themselves to such a program.

Regardless of what pattern the operator may employ, it is virtually impossible to work in all old wells. Yet the excessive cost of properly plugging them and drilling regularly spaced new wells nearby makes it advisable to employ the old holes in the best manner possible. As a result many of the patterns now employed in this district are decidedly irregular.

Another problem and a more serious one resulting from the abandonment of old wells is that, unless they are properly plugged, they can prove ruinous to a repressuring program. Repressuring medium, seeking the avenue of least resistance, is attracted to them thus resulting in serious by-passing or channeling. Similar results may be expected if an old hole, used as a producing well in a repressuring program, is located much closer to the intake well than other producing wells in that particular pattern. In many instances where the results of repressuring programs do not meet operators' expectations, the cause of the failure can be traced to the improper disposition of abandoned wells.

Therefore the location of wells, whether producers or abandoned holes, is an important consideration in the development of a property by secondary recovery methods. It is essential that the property be surveyed before a program is begun and the location of every abandoned well established. This is frequently difficult in these old fields where some properties have been farmed since their first development and wells have been literally

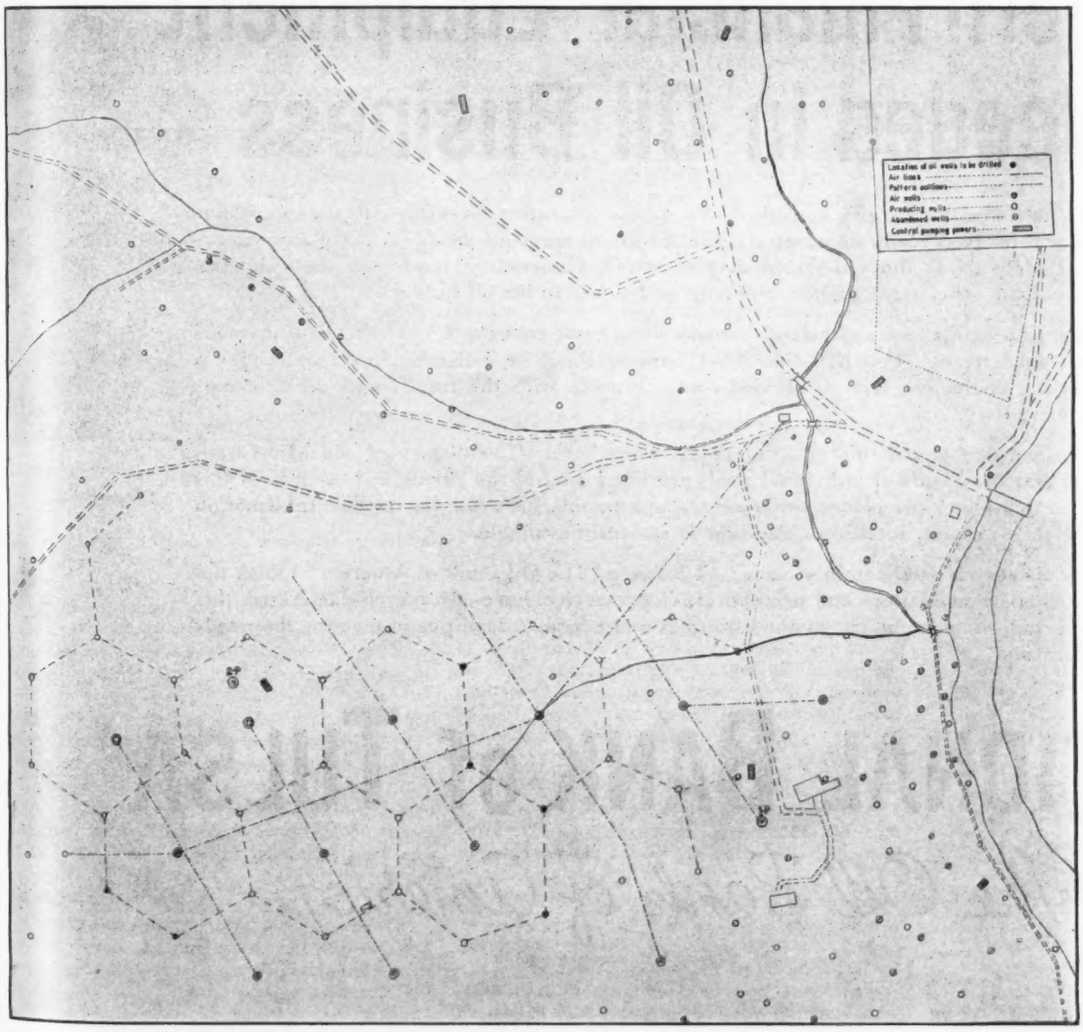
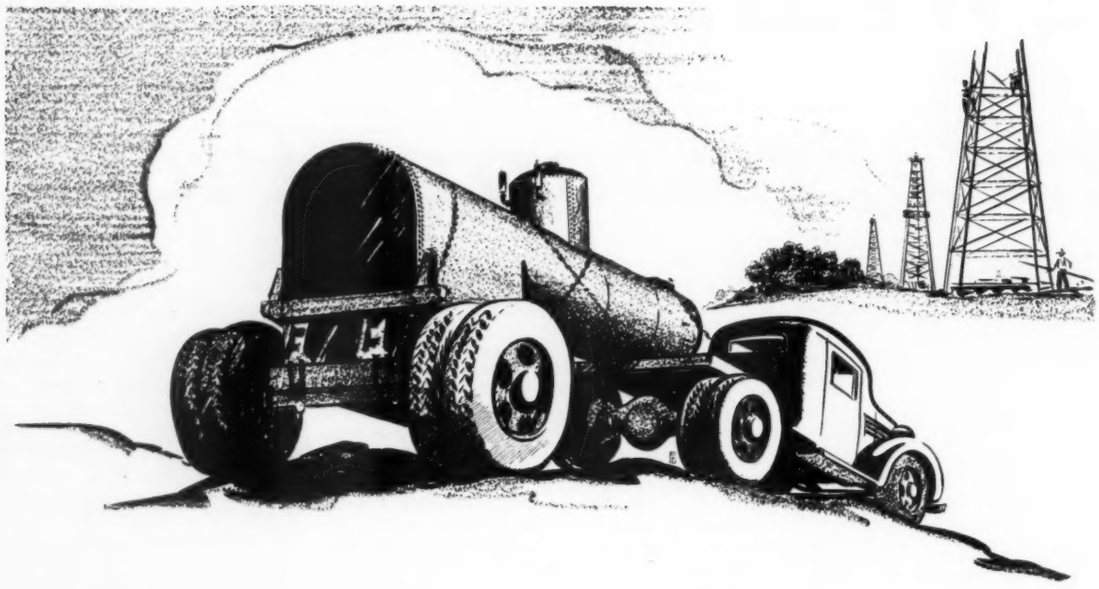


Diagram of the company's Rynd farm lease. As shown in the south portion of the map old holes are used to complete patterns and those interfering with the pattern are plugged



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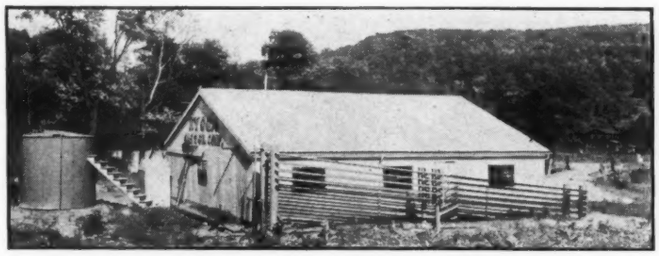
"ploughed under." How one company is meeting this problem successfully is shown in the accompanying map of the Rynd farm, located on the banks of Oil Creek 4 miles north of Oil City, Pa.

This property is now being developed by the Wyoga Gas & Oil Corp. of Williamsport, Pa. The company is employing modern production methods and is one of the growing number of operators in the Middle district now using electrical power both for central pumping powers and for individual wells.



Compressor plant on the Rynd farm lease, north of Oil City, Pa.

Located on the 269-acre property when Wyoga took it over were 38 abandoned wells, 127 producing wells and two pressure wells. In several instances producing wells were located immediately beside abandoned wells (see legend on map for symbols) and neither of the previously drilled pressure wells (1-P, 2-P) was so located as to center any possible regularly spaced pattern.

The manner in which the Wyoga Gas & Oil Corp. is using old holes to complete patterns and eliminating others which would interfere with a comparatively regular pattern is indicated on the accompanying diagram. Additional pressure and producing wells are drilling or will be drilled. Superimposed dashed lines show how a seven-spot pattern is being worked out on the southern part of the property.

Old or abandoned wells which interfere with the efficient operation of an individual pattern will be plugged. While several methods of plugging are common, that most generally employed is to plug the producing formation with sand and gravel or either of these, set a pine plug at the top of the formation and fill in with cement or cement mixed with sand. The pine plug swells when wet to form an effecive seal for preventing the air or gas from escaping from the repressured sand into higher ones.

Electric pumping unit for individual well on Wyoga Gas & Oil Corp.'s lease

The closely drilled southeastern portion of the property probably will not be repressured. According to Harvey Fulton, superintendent, present plans are to clean out all wells not too badly caved, pump those and plug the others. The elevation of this portion of the property averages several hundred feet lower than the north and west portions, accounting for its greater degree of development.

All seven central pumping units on this property are operated by purchased electric power and the company is "exceedingly well satisfied" with the cost. One of the central powers is pumping 40 wells and another 27. In addition several wells are being pumped by individual electric units.

The Rynd farm's conveniently located compressor plant is the largest erected in the Middle district this year. The all-steel building with a concrete foundation and floor measures 40 by 40 feet. It is equipped with two two-stage compressors, one a 10 by 4¼ by 10 Ingersoll-Rand driven by a 12½ by 16, 60-hp. Reid gas engine and the other a 8½ by 4½ by 9 Worthington driven by a 9 by 12, 30-hp. Reid engine. The engine compressor connection is as short as practicable to avoid loss of power on account of belt slipping and to prevent slapping. The building is sufficiently large to accommodate a third compressor and engine which will be needed when the remaining part of the property is developed.

Influence of Connate Water

(Continued from Page 100)

the magnitude of small water films, adhering to the pore wall, in relation to the pore diameter. For the purpose of simplicity, the pore shape is taken as a sphere and the adhering water film, arbitrarily, set at 2 microns or 0.002 millimeters. It is realized the shape of the pore is not a sphere, but it is felt this discreptancy does not destroy the usefulness of the graph and that these pore volume relations, with a given thickness of film water, probably are not at a great variance with the pore volume relations of natural oil sand bodies. Nutting, referring to sands settled in water in the laboratory, gives the mean pore diameter as a fifth of the mean grain diameter. However, on the basis of many oil sand examinations, he considers the mean pore diameter to be about the size of the mean grain diameter. Nutting finds the grains of oil sands range from 0.09 mm. to 0.2 mm. The author has examined the fresh fractured surface of a reasonably large number of permeability test cores from the Bartlesville sand and often finds pores as large as the largest of the grains.

Curve A (Figure 2) shows the per cent of pore volume, occupied by a 2-micron film of interstitial water, plotted against pore diameter. Curve B shows the same data in terms of barrels per acre-foot, plotted against pore diameter, the porosity of the sand body taken as 17 per cent.

From the inspection of the graph and the range of sand grain sizes shown by the accompanying microphotographs (magnification 25 times), the finding of a few hundred barrels per acre-foot of formational water in sand bodies with small pores, appears reasonable.

Examination of Cores for Salt Water

This brief discussion pertains to the author's experience with cores from virgin fields. Although the data are not exhaustive the results appear to be of some value.

The water determinations have not been found of value unless the core samples were properly protected immediately at the well and then inherent losses put a questionable aspect upon the calculation of the water concentration. For example, Fettke[16] in 1929 discussed the water found in Bradford cores and his deduction was that an appreciable amount of the water found was due to drilling water because the concentration of the water, calculations made from the salt and water determinations, were of the order of one-eighth to one-fifth of the concentration of the Bradford connate water used as a standard. At that time it was the opinion of many, including the author, that sand bodies that did not produce water with the oil, contained very little if any connate water.

Figures 3, 4 and 5 indicate a relationship between the salt found, NaCl per cent by weight, and the character of the core from a sand body that made a producer and a relationship between the salt found and the porosity of a core from a well that made water on testing.

The Seminole County core (Figure 3) shows a very uniform low salt content through the pay section, 3,502 to 3,513 feet, with more than traces of salt above in the tighter shaly phases. The permeabilities in the pay section ranged from 253 millidarcys to 855 millidarcys. Salt water was not indicated. This Cromwell well was drilled the summer of 1936 and is now making around 200 bbls. of crude per day.

Figure 4, Pontotoc core, also a Cromwell core, shows the same general relation between rock character and salt content as the Seminole Cromwell core disclosed. In the pay section, 2,613 feet to 2,625 feet, the salt content was fairly low, where as an appreciable amount of salt was found in the tight shaly phases above. The permeability of the pay was around 300 millidarcys and the permeability of the tight shaly phases ranged from 0.0 millidarcys to 2.4 millidarcys (arbitrary zero, no air flow in 30 minutes at 100 pounds pressure). The indications were the Cromwell would make a well; it was not tested, the well being finished for a producer in a lower horizon.

Figure 5, a Pawnee County, Bartlesville core shows, in general, a direct relation between the salt content and the porosity. The salt contents are high. The well was abandoned after the field test showed salt water along with a small amount of oil and gas.

In making interpretations from salt and water determinations, there are a number of features to be taken in account; for example the occurrence of evaporates as found in the Permian.

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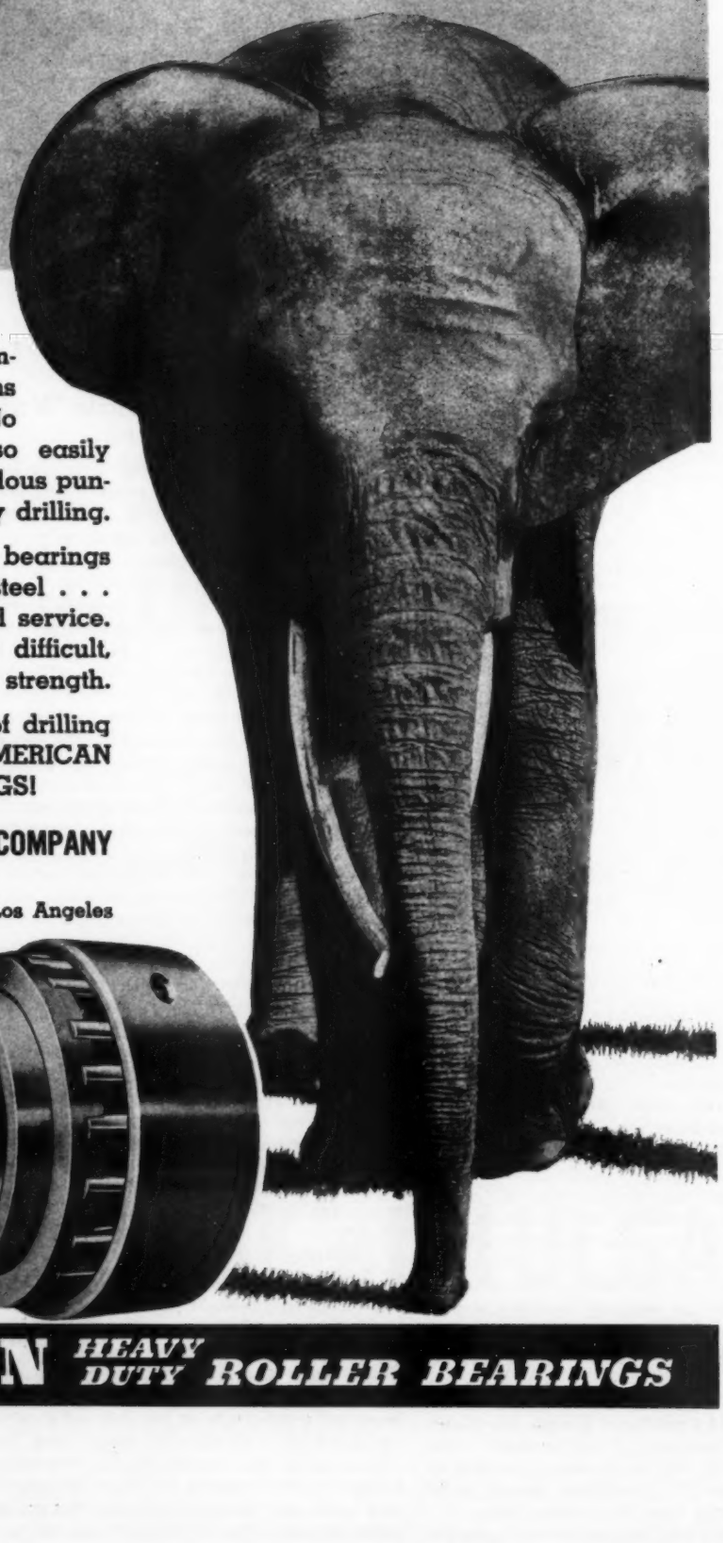

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Essentials of Fuel Utilization in Diesel Engines of Automotive Type

By ROBERT BEST
Continental Oil Co.

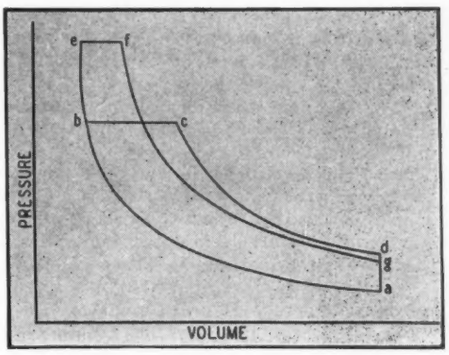

Fig. 1—Cycle of the diesel engine

In considering the scope of this paper I was continually urged by a feeling that the greatest benefit would be attained by a discussion of the fuel subject in a general way and in a non-technical manner. The object being to provide a basis of thought or starting point for the ever increasing number of operators in this field. At the same time it was thought desirable to describe the important properties of the fuels, using as examples the results of a few of the more recent experiments. In addition there will be explained some of the effects which may be ascribed to the fuel. In developing the subject, it will probably be helpful to review momentarily the gas cycles.

The usual concept of the diesel cycle, Figure 1, is shown in the lettered figure a, b, c, d, the compression, combustion, expansion, and exhaust lines being respectively ab, bc, cd, and da. Few, if any, automotive diesel engines even approximately follow this cycle. The course of events in actual engines more nearly approximates the figure a, b, e, f, g, in which the line b-e represents a portion of the combustion which occurs substantially at constant volume, and e-f the remainder which occurs at constant pressure. Thermally, this cycle is superior to the diesel cycle, the amount of improvement depending upon the proportion of the fuel burning at constant volume.

In actual engines, however, every effort is directed to decreasing the proportion of fuel burning at constant volume, because this part of the combustion increases the pressures that are already high, the rapid rise in pressure frequently producing roughness and knock. Combustion temperatures are also increased. These effects, if not controlled, considerably affect the wear and tear on engine parts and make necessary very heavy construction, thereby imposing severe limits to the fields in which this type of engine is striving to enter.

Much research has shown that while the rapid pressure rise may be controlled to an extent by many factors of engine design and conditions of operation, the effect itself may be ascribed to the fuel. It is due to the fact that some time is required to ignite the fuel after its injection, even when subjected to the temperatures of the highly compressed air in the engine cylinder.

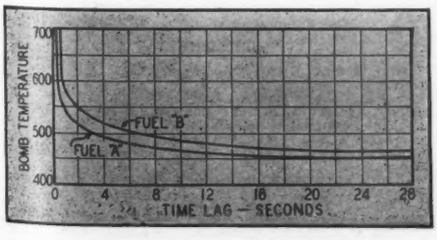

Fig. 2—Relation between ignition time and ignition temperature

In general, measurements have shown that in any homologous series of hydrocarbons those members containing the least carbon atoms require the longest time to ignite. As between hydrocarbons of different series, the paraffins require the shortest time and the aromatics the longest. The ignition time of a mixture of hydrocarbons is near that of the component igniting in the shortest time.

S.A.E. — Presented before regional meeting of the Society of Automotive Engineers, Tulsa, Okla., Sept. 30—Oct. 1, 1937.

The relation between the ignition time and the ignition temperature has been shown by Bridgeman and Marvin[1] from whose paper Figure 2 has been taken. In these experiments fuel was injected into a controlled temperature bomb containing air under pressure. It is shown that there is always a time interval between injection and ignition which varies over a wide range, depending upon the temperature.

When the injection valve of an engine opens and fuel starts to spray into the cylinder, ignition does not immediately take place, this same delay occurs. During this time more or less fuel, depending upon its characteristics, accumulates. When ignition occurs, this accumulated fuel is quickly consumed in about the same manner as combustion in the familiar gasoline engine, resulting in the rapid pressure rise and fuel knock. The effect of temperature on the ignition delay has been shown in engines by Boerlage and Broeze.[2] These pioneer investigators showed also the effects of many operating variables; briefly, they may be summarized as follows:

Fuel temperature: No effect unless the temperature is low enough to prevent proper distribution of the fuel due to high viscosity, in which case the delay increases.

Air temperature: Increasing air temperature shortens the delay.

Load: Increasing load shortens delay.

Air pressure: Throttling the air increases the delay while supercharging shortens it.

They also introduced the method of rating fuels by comparing them with mixtures of high and low reference fuels. This method, which has been since followed by most investigators, uses as primary reference fuels cetene, which is a readily ignitable fuel, and alpha methyl naphthalene, which is very difficult to ignite. A rating is secured by measuring some effect of the fuel, for example time delay, and then determining the proportions of a mixture of cetene and alpha methyl naphthalene which will have an equal effect. The result is expressed as a cetene number, the number being the per cent of cetene in the mixture. More recently, cetene has been replaced by cetane, a fuel of nearly equal ignition qualities and better stability but which is more easily produced in a sufficiently pure state.

Now, obviously, there are several effects of the fuel which might be used to determine the knock rating. As pointed out by Schweitzer and Hetzel,[3] the three operating variables, compression ratio, injection advance angle, and ignition time, are all interrelated so that by keeping any two constant and measuring the third, yields three possible means of fuel rating. In addition, since air pressure and temperature both have an effect on the delay, these variables could be used. Then there is the method of determining the minimum compression ratio at which a fuel will ignite and a method relating directly to the effect of a knock on the engine and computed from the rate of pressure rise. In addition, there is one method based upon the fact that the desirable ignition qualities of C. I. fuel and carburetor engine fuels are diagrammatically opposite. In this method C. I. fuel is blended with high octane reference fuel and the octane number of the blend determined in the regular manner . . .

Boerlage and Broeze[2] originally pointed out that the knock rating of a blended fuel could be predicted from the knock ratings of the separate portions, a straight line relationship holding. This has been substantiated by the work of Hubner and Murphy[4] except for special fuels containing dopes. In fact, for doped fuels, no method except engine performance seems to have much value. This has also been indicated by the work of Good.[5] As to the normal fuels (those derived entirely from petroleum), the methods depending upon physical and chemical properties can usually be relied upon to predict engine performance within a few cetane numbers.

From the data of Hubner and Murphy[4] I have prepared Figure 3 showing the general relation-

ship between the results obtained by various physical chemical methods and the cetane number by the delay method. . . .

Fuel System

Many and varied are the design details used to bring the fuel into intimate contact with all of the oxygen. Some of these may be listed as follows:

1. Nozzles designed to give sprays of certain geometrical forms found by experiment to be superior.

2. Combustion chambers made to fit the spray or designed to give a certain degree of turbulence to the charge.

3. Hot plates or hot walls designed to vaporize impinging fuel.

It is evident that certain fuel factors are also of importance in bringing about this desirable state of affairs. These factors are listed as follows: (1) Viscosity, (2) surface tension, (3) specific gravity, (4) volatility, and (5) cleanliness.

Since relatively little work has been done in the examination of these factors, only general statements can be made at this time. The first three decide the relative penetration, dispersion, and atomization of fuel sprays.

Viscosity affects fuel pump leakage and lubrication, and for this reason a certain minimum value is usually specified. It also may, if high enough, influence the coefficient of discharge through the pump nozzle and so reduce the velocity of emergence. This latter effect, however, is usually unimportant for the fuels marketed at present. Major interest is given to viscosity because of its effect on the fineness of atomization.

Under conditions obtaining in an engine, when the nozzle valve opens, an extremely high speed stream of oil issues forth which is immediately broken into a concical shaped cloud of oil droplets. The outer layer of the stream is pulled off near the nozzle, and as the stream progresses across the combustion chamber succeeding layers are removed until the whole jet is atomized. This peeling process is due to the surface forces exerted by the highly compressed air surrounding the jet. As these droplets are formed, they do not lose all of their velocity but continue of their own momentum across the combustion chamber. As the jet continues along its path, the number of the droplets is increasing; and due to the corresponding increase in surface, a larger and larger quantity of air is moved along with it. Since the fineness of the atomizing process depends upon the relative motion of the air and the oil, those particles in the outer portions of the cloud, which were formed nearest the nozzle, are much smaller than those on the inside which were formed later and after the surrounding air had acquired considerable velocity. The spray thus formed contains particles which vary greatly in size.

Experiments have shown[6,7] that when the injection pressure is increased the mean diameter of the drops becomes smaller (due to the increased velocity in the jet); and the angle of the cone increases, thus moving more air, but the penetration of the spray remains substantially constant. Kuehn[8] has shown in a limited number of experiments with injection into air at atmospheric pressure that at low injection pressures the mean diameter of the drops decreases about in proportion to viscosity; at higher pressures the effect of viscosity diminishes and the effect of surface tension assumes more importance.

Lee and Spencer[9] have confirmed this in considerable measure. With relatively low injection pressures into air at atmospheric pressure, with different liquids, they found considerable difference between the liquids, the degree of disintegration depending upon viscosity. The difference seems to be more pronounced the higher the viscosity. One exception however occured with water. This was the only liquid tested which differed materially from the others in surface tension, being a little more than twice any of the others. Atomization was relatively poor. Two diesel fuels were also tested at high injection pressures and high air densities. The absolute viscosity differed by about five-fold. In this case very little difference was found . . .

The latter possibility is perhaps supported somewhat by the work of Rothrock and Waldron[10] whose main conclusions were "First, there is considerable vaporization of the injection fuel in a high-speed compression ignition engine during the time available for injection and combustion. Second, this vaporization affects the course of combustion."

Effects of Specific Gravity

The principle effects of specific gravity are on the penetration of the fuel charge and the resulting spray cone angle. The heavier oils penetrate deeper into the combustion space but have a narrower cone angle resulting in a net decrease in distribution. This is shown by Joachim[11] whose data, while probably correct, were based on the use of various fuels which varied widely in viscosity as well as specific gravity.

It sometimes seems desirable to operate with substandard fuels or in unusual conditions; and for this reason to insure continuous and satisfactory operation of their engines, most manufacturers have found it necessary to be insistent upon the use of clean fuel, having in mind the lack of both suspended solids and corrosive substances in solution. Troubles in this connection have largely been confined to fuel pumps and injectors. When it is realized that clearances of these parts may be measured in a few hundred thousandths of an inch[12] it will be apparent that lapping and scoring may be caused by the presence of even extremely fine particles.

Contamination of Fuel

Our experience indicates that this factor is of major importance. It is of course the responsibility of the refiner to deliver to the customer a clean fuel; however, it is by no means unusual to find that fuel becomes badly contaminated in storage and in service. It is up to the operator to keep this contamination down to a minimum. In spite of what both the operator and the refiner may do, it is still necessary that the engine filters be capable of doing a good job. This not only requires good filters in the first place, but also means proper maintenance by operator. Many operators buy fuel on a price basis only and penalize their operations and costs accordingly.

The twin problems of erosion and corrosion are discussed by Behn.[13] These low-grade fuels have frequently been the source of a carbonization on nozzle tips and the carbon residue test has frequently been applied as a measure of this tendency. Operation in cold climates usually requires consideration of the pourpoint of the fuel which should be a few degrees lower than the lowest temperature of operation.

Conclusion

In conclusion, it should be noted that while the fuel factors have herein been discussed as more or less unrelated variables, that on the contrary they are very intimately associated with each other and with the conditions of operation.

For example an increase in the volatility of a fuel might increase its roughness because, when ignition occured, there would be more fuel in the cylinder prepared for combustion. There is probably a disadvantage in shortening the delay period more than necessary, as this results in a less efficient cycle. Much speculation on this point has already occured and at least one manufacturer specifies in addition to a minimum a maximum value for ignition quality. In a recent paper, Wilson and Rose[14] have shown that when an engine has a sufficiently high compression ratio, that either high or low cetane fuels may burn smoothly or roughly, depending upon simple adjustments of the injection advance angle. Or in other words with optimum advance angles for each type of fuel, equal smoothness is secured.

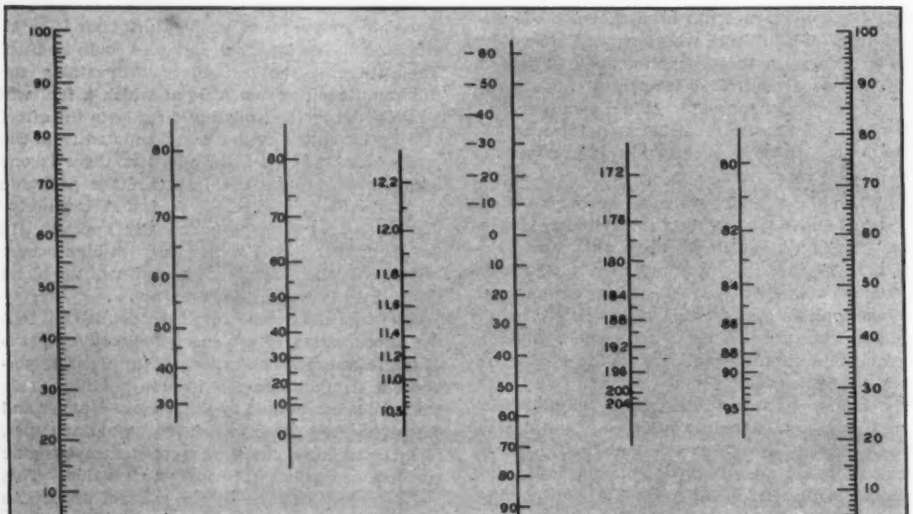

Fig. 3—General relationship between results obtained by various physical chemical methods and the cetane number by the delay method

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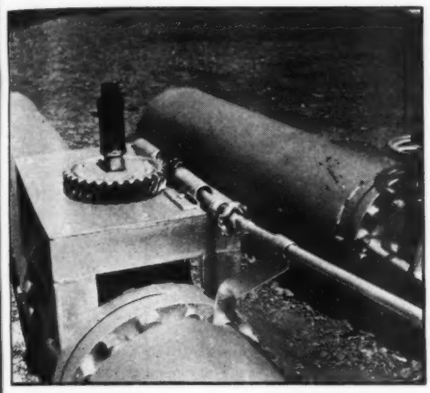
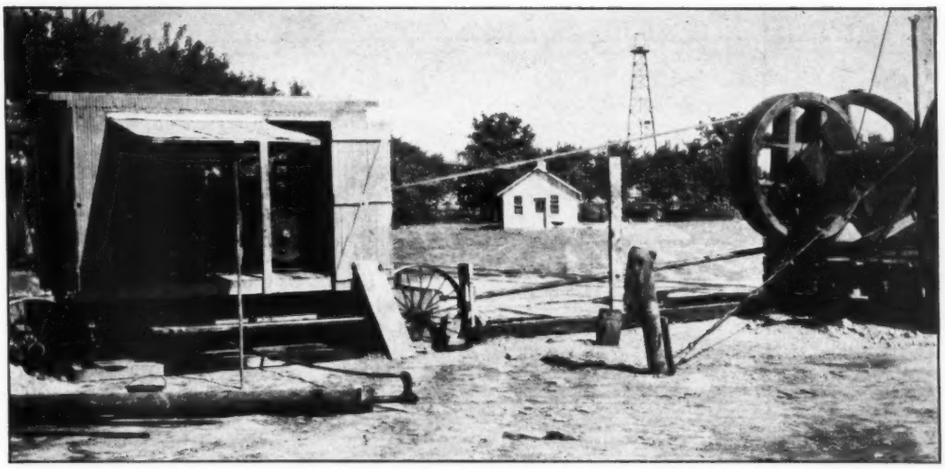
OPERATING IDEAS

Gears for Controlling Valve

A gas company operating in California uses the gear mechanism shown to make it possible for the attendant at a metering station to watch each meter while he regulates the flow of gas through its orifice. The company also uses these gears in a more spectacular manner on a main-line valve on the outskirts of San Francisco. Here the gears are operated by an electric motor which is controlled



from a station 4 miles away. At the station also are situated recorders which show the line pressure both above and below the motor-controlled valve. The valve opening can be closely regulated at the station to adjust the gas flow through the line as desired to meet the consumer demand in San Francisco.

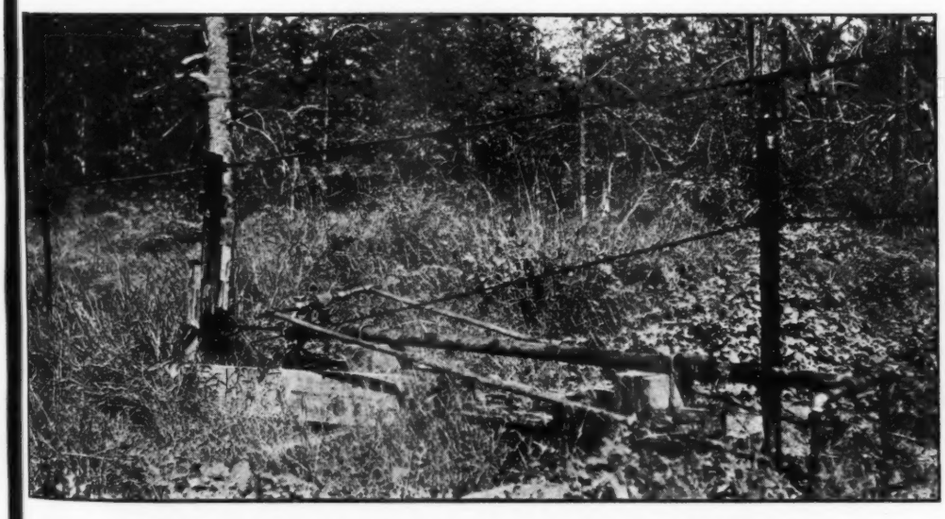


Portable Gasoline Engine for Cleanout Work

In the Noble field of south Illinois, where many wells have to be swabbed or require tubing jobs and permanent fronts have not yet been installed, one operator has installed a gasoline motor and clutch mounted in an inclosed wagon. The unit is pulled around from lease to lease as required for cleanout work. Holes are dug for the wheel when rigging it up; at the proper distance for the belt to reach from the clutch to the bandwheel on the derrick floor.

Shop-made Ceiling Fan

A shop-made ceiling fan, operating from an electric motor, has been installed on the motor side of a main-line electrical-centrifugal pump station in the East Texas field. The circulating fan is valuable in keeping the air to the motors as cool and as free from impurities as possible. A fire wall separates the motor and pump sides of the station, thus heat generated in the engine side of the station is not transferred into the pump room.



Unusual Water Pump Actuated by Pull Rod

An oil company operating in the Beebe field, near Ada, Okla., is pumping its supply of lease water from a large spring situated at one corner of the property by means of the novel pump shown here. The pump consists of an ordinary plunger-type working-barrel with two check-valves situated at each end, thus advantages of a double-stroke pump are gained. A wooden stroke post is attached to pump rod, the other end of the post being attached to the pull rod of an oil well. Thus the motion of the pull rod is utilized to pump the water from the spring. This pump supplies sufficient water to care for the cooling water needs of a 160-acre lease and that used by the camp employes for drinking water, cooking and other purposes

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QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph.D., Technical Editor

Influence of Water in Line-Base Greases on Lubrication

The opinion has been expressed that water has a definite value as a lubricant when present in a grease. I wish to ask if you know of any experimental evidence supporting this?—C. A.

It is known that the lubricating qualities of many greases are modified by the quantity of soap, glycerol and water that may be present. An investigation by Rhodes and Wannamaker of the lime-base greases will serve to illustrate the influence of water under the conditions of their experiments.

The oil used was a Pennsylvania paraffin base lubricating oil having a specific gravity 0.88 (29.3° A.P.I.), viscosity 445 at 100° F. The quantity of oil (85 gms.) and soap (15 gms.) was held constant in three greases with the quantity of added water ranging from 1.5 to 5 gms.

"At relatively low temperatures the lubricating power increased with increase in the water content; at higher temperatures the frictional coefficients for all three greases approached the same low value. At some rather definite and high temperature, with each grease there appeared to be a change resulting in an abrupt decrease in the coefficient of static friction. This critical temperature decreased with increase in the water content of the soap. It appears that with the lime-base greases the water is in some way involved in the formation of the adsorbed lubricating film and is important in determining the characteristics of the film.

"The water present in the grease plays an important part in determining its lubricating characteristics; for maximum lubricating power the proper ratio of water to soap is essential. Probably the water is actually built into the laminated adsorbed film that forms on the surface of the metals and that is responsible for the lubricating power of the grease."

Reference: Rhodes and Wannamaker, Lubricating Properties of Lime-base Greases, Ind. Eng. Chem., 29, 702, 1937.

Iodine In Oil Well Waters and Methods For Recovery

What amounts of iodine are found in the salt water associated with oil? What is the method used for extracting this iodine?—E. H. L.

The quantity of iodine found in sea water and the water met with in oil fields, has been mentioned by numerous authorities. According to Clark, U. S. Geological Survey, iodine may be present in sea water to the extent of 8 parts per million, calculated as calcium iodate. Ristle, Jr., U. S. Bureau of Mines, states that the waters associated with oil in the San Joaquin Valley, California, are reported to have an iodine content exceeding 20 parts per million. Waters from Louisiana have been found to contain 70 parts per million of iodine. Most of the oil well waters encountered in other oil fields of the world containing varying quantities of iodine.

Several methods for extracting iodine from such waters have been described by Suslov. The outlines following are based upon his description. (1) The water is acidified with sulfuric acid to form hydroiodic acid. This is followed by treatment with nitrous acid or chlorine, to set free the iodine, which is adsorbed in activated carbon and then evolved by the action of sodium sulfate and heat. (2) Starch is used in place of active carbon to collect the iodine. The starch is added to the water and the resulting compound of starch and iodine is allowed to settle and then collected by filtration. The material is treated with sodium sulfate solution and then with potassium chlorate and sodium hypochlorite to set free the iodine. The starch is regenerated. (3) Kerosene is used as the absorbing medium. The water is agitated with kerosene and settled. The extract treated with sodium sulfate solution and the process completed as under No. 2. (4) The water is agitated with kerosene, then the extract treated with calcium hypochlorite to free the iodine, which is absorbed in the concentrated form in kerosene.

Another method makes use of silver nitrate. The iodine is precipitated from the water with the required quantity of 0.5 per cent silver nitrate solution. This quantity is obtained by calculation from an analysis of the water. A small quantity of iron chloride may be added to hasten the settling. The silver iodide is obtained by filtration.

Active carbon, which has long been known to have an affinity for adsorbing the halogens, has been found to possess to a high degree the power to collect iodine from water solutions. It is utilized in numerous iodine extracting processes in which the essential idea is that when the saturated carbon is heated the iodine is set free and then converted to an iodide.

References: B. M. Suslov, Neft 6, No. 16, 13, 1935. (From Chem. Abs. 30, 3598, 1936). F. W. Clark, Data of Geochemistry, U. S. Geol. Survey. C. E. Ristle, Jr., U. S. Bureau of Mines, Tech. Paper 404.

Questions on Petroleum Technology may be sent to Dr. Charles K. Francis, The Oil and Gas Journal, Tulsa, Okla. When a copy of the answer is desired postage should be enclosed.

CHEMICALS FOR THE PETROLEUM INDUSTRY

Sulfuric Acid

Use—Treating.
Odor—Acid.
Formula—H_2SO_4.
Specific gravity—1.8342 or 66° Be.

Melting point °F.	50
Boiling point °F.	410 to 460
Decomposition point °F.	644
Acid as H_2SO_4, per cent	93.05

Limitations

Gravity Baume, min.	66°
Acidity as H_2SO_4, per cent	93
Nitrogen	none
Chlorin, hydrochloric acid, selerium, arsenic, iron, max.	trace
Sediment, max., per cent	0.25

Note: Commercial grades include 66°, 60°, 50°, oleum, fuming, (98 per cent) pure (C.P.), and numerous percentages as dilute.

Viscous, Non-Viscous and Bright Stock Oils Defined

Please give us the meaning of neutral lubricating oils, both viscous and nonviscous, also, bright stocks.—G. R. D.

The word neutrals, as applied to lubricating oils, is now used in a very broad way to indicate a group of lubricating oils, usually of relatively low viscosities. It is too indefinite to be considered when grading oils for industrial use. Some years ago the neutrals included the first fractions obtained as a distillate from the crude oil, to distinguish them from the cylinder stock, a residual product. Also, neutral indicated that the oil had not been treated with acid. Most neutral oils being simply filtered through fuller's earth.

The terms nonviscous and viscous originated from the practice of reducing, by redistillation, the neutral fraction to obtain an overhead and a bottom. The distillate then being designated nonviscous neutral and the residue the viscous neutral. The viscosity of nonviscous neutrals is determined at 100° F., the nonviscous oils usually range in viscosity from about 65 to 125 and the viscous oils from 125 up. They are at least partially dewaxed but vary to a great extent in pourpoint There is a similar variation of the other properties. The trade practice now is to identify neutrals as to source and the important properties are always specified in sales contracts.

Bright stock is a term that developed from cylinder stock. The original cylinder stocks were the liquid residues remaining in the stills after the other products from the crude oil had passed off as a distillate. They were not purified in any way, except by settling. The first cylinder stocks were made from Pennsylvania oil, varying in color and viscosity depending on the source and refining conditions. They were usually reduced in the presence of steam. The viscosities, determined at 210° F., had an approximate range of from 60 to 200. The cylinder oils were much improved in color by filtration, and while this operation had a tendency to reduce the viscosity the appearance, with the lighter color, was so striking that such oils were designated bright stocks. The color ranged from amber to various shades of green in reflected light and a deep red by transmitted light. The term also indicates free from haze and bluish bloom.

Bright stocks are fully refined today, usually acid treated, dewaxed and filtered. They are characterized by light color, clearness and "brightness," viscosity usually higher than 100 at 210° F., pourpoint very low, many bright stocks being obtainable with pourpoints below zero Fahrenheit. They contain very little Conradson carbon, sulfur or other impurities.

The modern bright stock is not always a residual product but may be a distillate obtained by vacuum distillation; however, as an oil made this way may not equal a residual product in all respects, it is desirable that it should be further identified by prefixing the descriptive word overhead. Without this modification, the bright stock oils are considered by the industry, to be dewaxed, filtered, high viscosity and fully refined lubricating oils derived from residues.

PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Ratio of Cable Tool to Rotary Drilled Wells

We have received a request from London asking for information as to the number of cable tools being run in the United States and the number of strings of rotary tools, or if not this information the percentage of strings of cable tools as against rotary outfits.—W. J. M.

In reply to your request we refer you to the Problems From Readers page in the May 6, 1937, issue of The Oil and Gas Journal, page 71.

The answer and question is headed "Selection of Cable Tools or Rotary" and in the first paragraph it is stated that during 1936 there were 25,888 completions in this country as shown in the table prepared by James McIntyre and published on page 41, January 28, issue of The Oil and Gas Journal. An analysis of these completions by states and subdividing the areas roughly into cable tool and rotary territory indicates the cable tool completions totaled 10,848 wells or 42 per cent while the rotary completions totaled 15,040 wells.

These figures are by no means accurate in that they are indicitive of just how many cable tool and rotary wells have been drilled but it is probable that the percentage is fairly accurate.

The use of cable tools has been largely in shallow fields, old areas and in some parts of the country where rotary outfits are not suited.

You may be interested in the whole reply which came to us from Australia.

Meters For Measuring Gas and Oil

I would like to be advised whether or not there is a meter that when put on a pipe line will measure the oil and/or gas being run through the line. Of course, I am familiar with the gas meter, but I am not familiar with a meter that will measure oil and/or gas.—V. L. M.

Metering of pipe line oil is quite commonly done now but these are fluid meters and it is assumed that the oil has been freed of any gas that may have accompanied it from the wells. The oil and gas as produced is passed through an oil and gas separator and the oil free of the gas is delivered to the lease stock tanks which are connected to the pipe line. Here the pressure is lowered to approximately atmosphere pressure and the gas is allowed to escape. From that point on only oil is handled in the line.

If it should be necessary to meter the well's production it can be done by passing the oil and gas through the meter and then taking samples of the settled oil after the gas has been permitted to escape. In this way the shrinkage in volume of the well's product can be estimated and the meter readings are then corrected to account for the gas that accompanied the oil.

Most meters now used for this kind of work are of the displacement type and compressed or occluded gas in the oil occupies space the same as the fluid. If the oil is being handled under high pressures this gas may be so compressed as to occupy a relatively small space in the meter. When the pressure is relieved this gas will expand and escape from the oil and if the oil and gas has been measured in a meter under high pressure conditions, as it done on some pipe lines, it is quite essential that the gas free oil be sampled and the change in volume noted. This is a correction factor and must be applied to the meter readings.

From the above it seems that the answer to your question is "no" if you have in mind a meter that will handle oil and gas without making a correction for space occupied by the gas. On the other hand there are several reliable meters upon the market which can be used in a practical way to meter oil that contains gas if corrections are made to account for the gas that passed through the meter.

Radio in Oil Prospecting Work

It has been suggested that you might be in a position to let me have some information on the use of radio in oil prospecting work. Will you be good enough to inform me if this is the case, or perhaps you can refer me to some other source for this material?—W. W. W.

Your letter about the use of the radio for oil prospecting is a bit difficult to answer for it is not clear as to just what phase of this problem you are interested in. Radioactivity has formed the basis for one form of geophysical prospecting and there has been considerable written about this subject. The American Association of Petroleum Geologists, Tulsa, has published several articles on radioactivity and if you will write to it you will be given the references and advised how the articles can be obtained.

In the A.A.P.G. Bulletin of August, 1936, there is a note by Edmund M. Spieker, Ohio State University, Columbus, Ohio, on "Radio Transmission and Geology," in which he refers to an article by R. C. Higgy and E. D. Shipley, "Radio Transmission Survey of Ohio," Ohio State University Studies, Eng. Exp. Sta. Bull. 92, May, 1936, and another by E. Cloos, "Auto Radio—An Aid in Geologic Mapping," American Journal of Science, Ser. 5, Vol. 28 (1934) pp. 255-68.

In his notes Mr. Spieker states that the article by Messrs. Higgy and Shipley is the second time the general phenomenon of correlation between effectiveness of radio transmission and geology has come to his attention, the first article being the one by E. Cloos.

After a brief review of the facts as set forth by Messrs. Higgy and Shipley, Mr. Spieker concludes as follows:

"Important applications of the principle in petroleum geology are not readily obvious, but they might appear in places where it is important to locate critical changes in bed rock near the surface and covered by alluvium. Possible uses in such fields as Pleistocene geology, for the location of buried channels, and in ground-water geology, are more easily visualized, and, in any event, it seems almost certain that through study of the phenomenon, by the methods of Messrs. Higgy and Shipley under supervision of a geologist and with purely geologic ends in view, would produce results of value in some quarter of geologic science."

It is suggested you write to Mr. Spieker for further information along the above line if this is your interest but if there is some other phase of this development you are interested in we will be glad to be so advised and will try to assist.

Oil Development Activities in Florida

Can you tell me what the present oil developments are in Florida, or advise me how I can obtain this information?—C. A. F.

On page 282 of the September 16 issue of The Oil and Gas Journal you will find a summary of field operations in Florida as of August 31. It shows two wells were drilling in Lake County, and one well in Nassau and another in Suwanee counties. A total of four operations or one more than in July.

It is not understood what additional information you want but The Oil and Gas Journal does carry field reports on all Florida activities from time to time as conditions justify.

Magnetometer Surveying

I would like some information regarding the magnetometer. Is it a reliable instrument accepted by geological staffs of the various large oil corporations? Can it be used with good satisfaction in making individual locations, or is it useful only in general work? Is one instrument of any value by itself, or must several of them be worked together in order to make a close check? Which is most generally used at this time in general geology, the seismograph or magnetometer?—R. E. C.

If you are seriously interested in the use of the magnetometer it is suggested you secure from the American Askania Corp., Houston, Tex., a copy of the "Manual on Geophysical Prospecting With the Magnetometer," edited by J. Wallace Joyce under the auspices of the U. S. Bureau of Mines. This bulletin costs $1.50 and is a very complete treatise on this subject and in it you will find answer to most of your questions together with much other valuable information on this general subject.

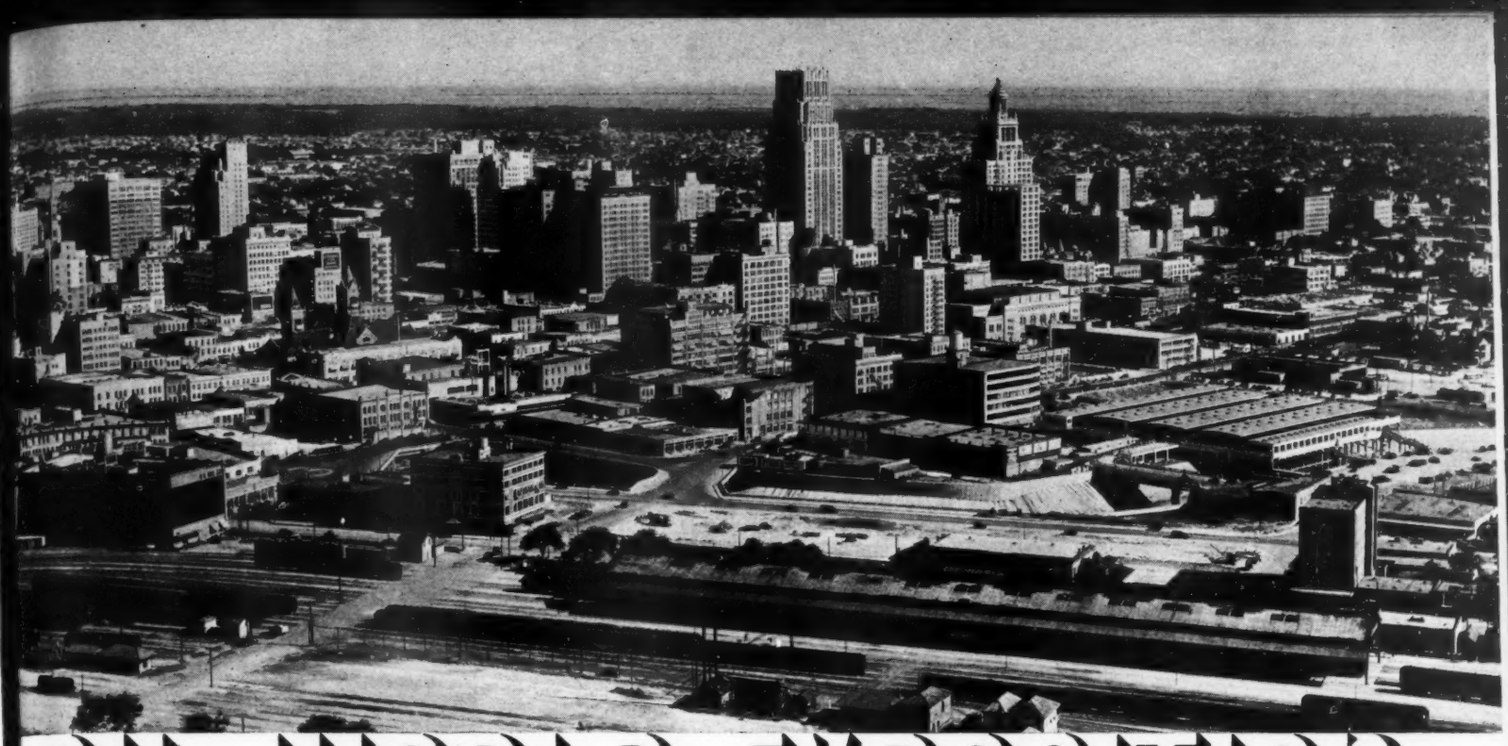
To answer your questions in the order of your asking: The magnetometer is used by all of the large oil companies and geophysical surveying companies for certain types of work. The uses and limitations of the instrument are well known to the geologists and geophysists.

It is used for making surveys for the purpose of making well locations and it is also used for general reconnaissance work.

A magnetometer crew consists of two men, an operator and his assistant. The operator sets up, levels, and orients the tripod and makes all observations. He also carries the magnetometer and tripod from station to station. The assistant keeps all record of data and carries maps, carrying cases, and auxiliary magnets. He assists the operator by holding the magnetometer head while the later orients the tripod turntable, and he then takes the compass while the operator makes the readings.

This indicates that one instrument is sufficient with which to make a survey but several parties could cover an area more rapidly but each party would work independent of the other in the field and the notes would be correlated in the office.

For the character of work now being done in geophysical surveying the seismograph is generally used. There are only a few magnetometer crews now in the field while there are a large number of seismograph parties busy in all parts of this country where prospecting for gas and oil is being carried on.



OIL-WORLD EXPOSITION

Houston, Texas

Final preparations are being rushed to completion on schedule for the opening in Houston, Monday afternoon, October 11, of the first biennial Oil-World Exposition. Houston's new $1,337,000 municipal coliseum, in and around which the exposition and its various associated oil activities for the week will center, is ready as promised. Although not finished in all its details, its construction is at a stage which will not inconvenience exhibitors or visitors. Many exhibitors already are on the scene setting up displays, and with the vanguard of visitors beginning to arrive, the exposition rapidly is taking form.

When the gates of the exposition are swung open formally Monday afternoon, there will be ushered in a week crowded with oil men's activities. The exposition proper and its associated conferences and meetings, the general convention of the Independent Petroleum Association of America, the regular session of the Interstate Compact Commission, and other gatherings, combine to make the week one of the most important in the oil history of Houston. Fitting official ceremonies will be held as the gates are opened to mark the initial utilization of the new coliseum, which has been under construction the past year.

More Than 400 Exhibitors

More than 400 separate exhibitors have been signed up for the exposition. Displays of machinery, equipment, tools and supplies will cover thoroughly all branches of the industry, including exploration, drilling, production, refining, natural gasoline manufacture, pipe line, transportation and distribution. In addition there will be various other exhibits of interest to the oil industry. As the new coliseum, despite its immensity, is not capable of accommodating all the exhibitors, a huge tent has been set up in front of the coliseum, and this also has been filled. Outdoor exhibits of heavy and large equipment and machinery are spread over five vacant city blocks adjoining the building and tent. The main entrance and sole access to the exposition building and grounds is through the tent. Exhibit facilities in the tent, which is one of the largest in the country, are identical with those in the coliseum.

Pictures of the Oil-World Exposition Directors Start Page 118.

Reception of the Oil-World Exposition, an industry owned, nonprofit venture, and successor to the Oil Equipment and Engineering Exposition which has been held in Houston annually for several years, has far exceeded expectations of the originators both in general interest and in financial response. Membership consists of more than 350 men, representing leading oil and manufacturing and supply companies of this area. The organization includes John R. Suman, vice president of Humble Oil & Refining Co., president; Chase E. Sutton, division manager of Pure Oil Co., executive vice president; W. L. Childs, vice president of Reed Roller Bit Co., J. S. Abercrombie, president, Abercrombie Oil Co., Wallace Wilson, president of Wilson Supply Co., and George A. Hill, Jr., president of Houston Oil Co., vice presidents; Ray L. Dudley, president Gulf Publishing Co., secretary-treasurer, and Ed G. Lenzner, general manager.

Executive Committee

OIL-WORLD EXPOSITION, INC.

J. S. Abercrombie	George A. Hill, Jr.
S. P. Brown	Joe H. Russell
Frank S. Carothers	W. B. Sharp
W. L. Childs	John R. Suman
Ray L. Dudley	Chase Sutton

Wallace Wilson

Fulfilling a definite purpose set forth in the by-laws of the organization to collect, study and disseminate factual data and knowledge in respect to the presence and discovery of oil, gas and other minerals; the production, storage, transportation, refining and marketing of petroleum and its products, the exposition is sponsoring a program of conferences and technical meetings with papers and discussions of methods and equipment covering various branches of the industry.

Among the special meetings and conferences to be held in connection with the exposition are those on directional drilling, refinery engineering, modern drilling technique, refinery measurement and control, production practices, transportation problems, oil equipment export, and first aid and safety.

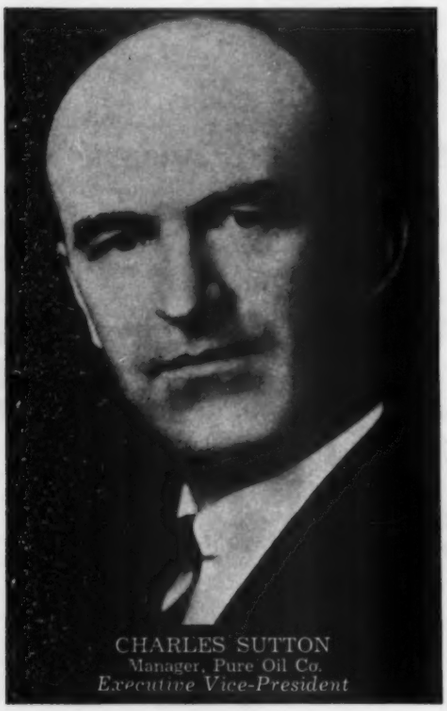
Each one of these meetings will be under the supervision of a special committee which has arranged programs of definite papers and discussions on educational and technical subjects. All these will be held in the convention hall or conference rooms of the coliseum concurrently with the hours of the show.

Modern Drilling Practices

The conference on modern drilling technique will be held in the form of a meeting of the petroleum division of the American Society of Mechanical Engineers, sponsored by the exposition's drilling committee, of which Joe H. Russell, assistant to the vice president of the Gulf Oil Corp., is chairman. This meeting will be held on the afternoon of October 12.

On the same day, the conference of refinery chemists will be held under the sponsorship of the chemists committee, of which W. H. Curtin & Co., is chairman. The conference which will continue

throughout the day, will include papers and discussions on such subjects as "Chemical and Physical Methods for the Extraction of Salts from Refinery Charging Stocks," "Controversial Methods of Asphalt Treating," "The Treatment of Boiler



CHARLES SUTTON
Manager, Pure Oil Co.
Executive Vice-President

Feed Waters," "Comparison of Octane Numbers of Various Types of Refinery Products as Obtained by Different Methods," "Accelerated Method of Determining Stability of Cracked Fuels," "Testing Methods of Evaluation of Used Motor Fuel Oils," and "Oxidation of Lubricating Oils."

Directional Drilling

Various phases of directional drilling will be discussed at a conference Tuesday afternoon sponsored by the directional drilling committee, of which George B. Corless, general superintendent, Gulf Coast division, Humble Oil & Refining Co., is chairman. A complete review of experiences in producing directionally drilled wells, together with discussions on the mechanics of controlled drilling and oil well surveying, and recent developments in this work, will comprise the program.

Of particular interest to supervisory personnel, engineers, chemists and operators of refineries and natural gasoline plants will be the conference on refinery measurement and control lasting two days, October 13 and 14. Under the supervision of the refinery committee of the exposition, headed by W. H. Curtin, W. H. Curtin & Co., the program is sponsored by professors of the engineering departments of three universities, Rice Institute, University of Texas, and Agricultural and Mechanical College. Engineering classes of all colleges have been invited to attend the sessions.

Refining Problems

Following the two day meeting on measurement and control, the refining committee will conduct a one day program on refinery engineering. An extensive program, covering a wide range of subjects dealing with various refinery methods, and phases of operations, and problems, has been prepared.

In the transportation conferences to be held October 13 and 14 under the direction of the transportation committee, headed by T. G. Price of Shell Petroleum Corp., open discussions of fleet operating problems will be featured.

The safety and first aid committee with J. J. Delahide of E. D. Bullard Co., chairman, is sponsoring a buffet luncheon Wednesday noon, at which a talk on safety with demonstrations of protective equipment will be presented. On the night of October 13, the committee will stage a championship first aid contest with 18 teams from Oklahoma, Louisiana and Texas competing.

Of Interest to Foreigners

Under the chairmanship of Thomas E. Ward, president, Oilfield Equipment Co., Inc., the Oil Equipment Export Committee will hold several meetings during the exposition with programs of value to foreign visitors and manufacturing companies serving foreign fields. Advance reservations have indicated a large delegation of visitors from foreign countries will attend the exposition. A dinner will be given for these visitors at the Houston Club Wednesday evening.

One of the interesting phases of the show will be the section set aside for the showing of new inventions and new patents. These exhibits, arranged by the New Patents and Inventions Com-

J. S. ABERCROMBIE
Pres., J. S. Abercrombie Co.
Vice-President

mittee, of which Lester B. Clark, patent attorney is chairman, will feature working models and patterns of tools and machinery for field and plant use that have not been placed on the market. This is done to acquaint the industry and manufacturers of equipment with new designs. One evening will be assigned for talks and demonstrations of new inventions.

Attractions at the exposition will be motion pictures depicting all phases of petroleum operations in this country and foreign fields which will be shown daily in projection rooms at the coliseum. A number of technical films have been obtained from various leading manufacturers of equipment and several complete films of particular interest have been obtained from the Bureau of Mines.

Attendance at the show is expected to be materially boosted by the general convention of the Independent Petroleum Association of America which will be held Thursday, Friday and Saturday. This convention will draw hundreds of inde-

JOHN R. SUMAN
Vice-Pres., Humble Oil & Ref. Co.
President

pendent oil men from all parts of the country, many of whom will come in advance of the show to take in the exposition.

Further interest in the exposition is being attracted by the Interstate Oil Compact Commission which also will hold its regular session in Houston on October 14 and 15. The session was scheduled in Houston so that those attending the commission meetings could visit the exposition. This will bring to Houston many of the leading oil conserva-

GEORGE A. HILL, JR.
Pres., Houston Oil Co.
Vice-President

tion and state officials of the states represented in the compact.

By official proclamation of Governor James V.

ED G. LENZNER
General Manager

Allred of Texas, Friday will be "Petroleum Day" in Houston and in Texas. On this day, all who can are urged by the governor to visit Houston and the oil show.

Many Countries Represented

Oil men from all states and all foreign countries have been invited to attend the show. The invitation was extended officially by the President of the United States on behalf of the United States government, through authorization in a resolution passed by congress last May.

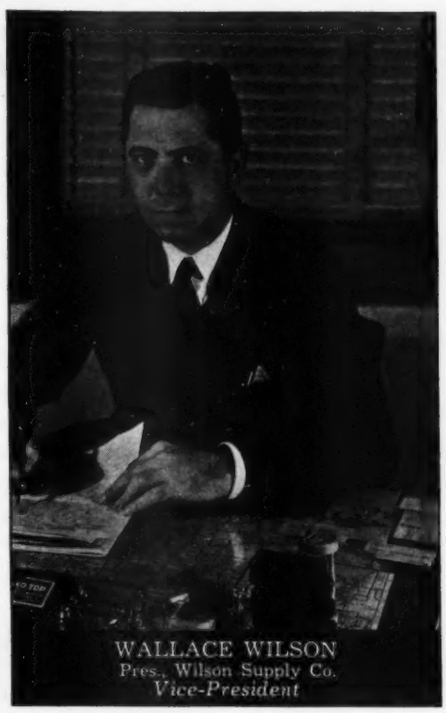
Demonstrations of equipment in operation will

W. L. CHILDS
Vice-Pres., Reed Roller Bit Co.
Vice-President

be carried on continuously in outside spaces adjacent to the main exposition building. Among these will be a demonstration of shooting out a well fire under the direction of M. M. Kinley. On the outside spaces will be large drilling equipment in operation throughout the show.

Entertainment Features

Chief among the entertainment features will be the oil men's annual banquet on the evening of October 15. Entertainment for this will be under the direction of the Houston Wildcats. Various other dinners of smaller extent will be given during the exposition. During the week band concerts will be given by the United States army band from Fort Crockett at Galveston. Searchlight displays and sound detector maneuvers will be presened at night by the army aviation division. A special golf tournament will be held Wednesday afternoon at Brae Burn Country Club. On Thursday night, there will be an all-star, oil-show wrestling match at the Houston city auditorium. The exposition management has purchased 1,000 tickets and made 500 additional reservations for this. On Thursday evening there will be a yacht trip down the Houston Ship Channel to the San Jacinto Battleground and San Jacinto Inn, where a dinner will be given. Throughout the show arrangements will be made



WALLACE WILSON
Pres., Wilson Supply Co.
Vice-President

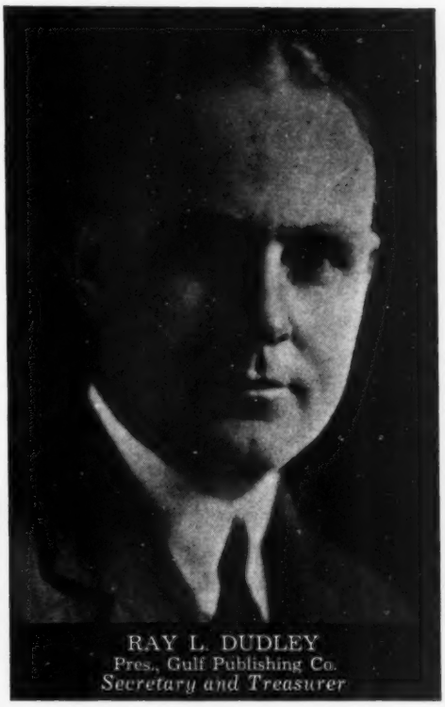
for trips to various fields and through oil equipment manufacturing plants. The final attraction will be the Rice Institute-Tulsa University football game on Saturday afternoon.

Safety and First Aid Committee

J. J. Delahide, E. D. Bullard Co., chairman; George J. Gruber, Mine Safety Appliance Co.; R. B. Roaper, Humble Oil & Refining Co.; Claude Liles, Magnolia Petroleum Co.; Pete Keegan, Shell Petroleum Corp.; Tom Brown, Gulf Production Co.; Jerry Lockwood, Empire Oil & Refining Co.; Cecil Hightower, United Gas Public Service Co., and C. A. Miller, Texas Co.

Refinery Advisory Board

J. J. Allinson, Lion Oil Refining Co.; I. A. Anson, Solvex Refineries, Inc.; Guy Barritt, Danciger Oil & Refineries, Inc.; J. R. Barrott, Ohio Oil Co.; Frank W. Bennett, Bennett Refining Co.; O. H. Berryman, General American Oil Co.; O. B. Bingham, H. H. Cross Co.; C. H. Christman, Atlas Pipe Line Co.; R. G. Collins, Texas Co.; S. W. Darling, Texas Co.; F. S. Dengler, Texas Co.; C. S. Dickens, Magnolia Petroleum Co.; J. T. Dickens, Magnolia Petroleum Co.; P. E. Foster, Shell Petroleum Corp.; W. F. Fulton, United Gas Public Service Co.; J. K.



RAY L. DUDLEY
Pres., Gulf Publishing Co.
Secretary and Treasurer

Gibson, Phillips Petroleum Co.; Fred W. Gray, Pan American Petroleum Corp.; A. E. Higgs, Texas Co.; Charles J. Holland, Rado Refining Co.; D. H. Hyler, Continental Oil Co.; E. A. Johnson, Stone Oil Co.; J. B. Joyce, American Petroleum Co.; Ed Kimes, Root Petroleum Co.; Lee Le Ferney, Southport Petroleum Co.; J. K. MacKinnon, Talco Asphalt & Refining Co.; John May, Shell Petroleum Corp.; W. Mullemeister, Shell Petroleum Corp.; H. D. McLean, Rodessa Oil & Refining Corp.; J. A. O'Neill, Hurricane Petroleum Corp.; Ralph P. Pierce, Arkansas Fuel Oil Co.; W. H. Powell, Bright Stock Co.; L. L. Rebber, McMillan Petroleum Corp.; John Ricker, Magnolia Petroleum Co.; C. E. Robertson, Republic Oil Refining Co.; M. R. Ryan, Danciger Oil & Refineries, Inc.; R. G. Sanders, Magnolia Petroleum Co.; P. C. Scullin, Texas Co.; J. C. Senter, Chalmette Petroleum Corp.; J. L. Sewell, Coastal Refineries, Inc.; K. W. Shimeall, Crown Central Petroleum Corp.; H. F. Sims, Panhandle Refining Co.; John Sue, Humble Oil & Refining Co.; T. J. Sullivan, Gulf Oil Corp.; P. J. Sweeny, Pan American Refining Corp.; J. J. Thomas, East Texas Refining Co.; Roger Traiweek, Eastern States Petroleum Co.; A. T. Van Pelt, Berry Asphalt Co.; R. L. Verner, Pure Oil Co.; F. L. Wallace, Texas Co.; O. W. White, Stanolind Oil & Gas Co.; J. F. Whitehurst, Corpus Christi Refining Co., and Fred N. Williams, Martin Refining Co.

Program Committee

R. L. Dudley, chairman; E. G. Lenzner, George A. Hill, Jr., Houston Oil Co.; Chase Sutton, Pure Oil Co., and Frank Carothers, Norvell-Wilder Supply Co.

Directional Drilling Committee

G. B. Corless, Humble Oil & Refining Co., chairman; Alexander Anderson, Alexander Anderson, Inc.; H. John Eastman, Eastman Oil Well Survey Co.; R. S. Hyer, Sperry-Sun Well Surveying Co.; A. B. Patterson, Texas Co.; M. L. Cashion, Gulf Production Co., and D. B. Collins, Shell Petroleum Corp.

Program

OIL-WORLD EXPOSITION, HOUSTON, TEXAS

MONDAY, OCTOBER 11

1:30 P.M.	**Official Opening Program**	COLISEUM
7:00 P.M.	**U. S. Army Band, Fort Crockett, Concert**	COLISEUM
7:00 P.M.	**U. S. Army Aviation Division Searchlight Display and Sound - Detector Maneuvers**	COLISEUM

TUESDAY, OCTOBER 12

1:30 P.M.	**Chemists and Chemical Engineers Division Refinery Program**	
2 TO 4 P.M.	**Directional Drilling Committee**	
	Drilling Committee-American Society of Mechanical Engineers	
7:00 P.M.	**U. S. Army Aviation Division Searchlight Display and Sound - Dectector Maneuvers**	COLISEUM
7:30 P.M.	**Humble Oil & Refining Company Glee Club**	COLISEUM

WEDNESDAY, OCTOBER 13

9:00 A.M. TO 12 NOON AND 1:30 P.M. TO 5:00 P.M.	**Conference on Refinery Measurement and Control**	
	Oil Industry Transportation Conference	
ALL DAY	**Oil Men's Golf Tournament**	BRAE BURN COUNTRY CLUB
9:00 A.M.	**Registration—Independent Petroleum Association of America**	RICE HOTEL
7:00 P.M.	**U. S. Army Band, Fort Crockett, Concert**	COLISEUM
7:00 P.M.	**U. S. Army Aviation Division Searchlight Display and Sound - Detector Maneuvers**	COLISEUM
7:30 P.M.	**Oil Equipment Export Meeting and Dinner**	HOUSTON CLUB

THURSDAY, OCTOBER 14

9:00 A.M. TO 12 NOON AND 1:30 P.M. TO 5:00 P.M.	**Conference on Refinery Measurement and Control**	
	Oil Exposition Wrestling Match	COLISEUM
9:00 A.M.	**Independent Petroleum Association of America**	RICE HOTEL
	Interstate Oil Compact Commission	RICE HOTEL
7:00 P.M.	**U. S. Army Aviation Division Searchlight Display and Sound - Detector Maneuvers**	COLISEUM
7:30 P.M.	**Humble Oil & Refining Company Glee Club**	COLISEUM
	Yacht Trip on Channel Through Houston Harbor to San Jacinto Battlegrounds and San Jacinto Inn, and Luncheon at San Jacinto Inn	
	Oil Industry Transportation Meeting	

FRIDAY, OCTOBER 15

9:30 A.M. TO 12 NOON AND 1:30 P.M. TO 5:00 P.M.	**Conference on Refining Engineering**	
	Chemists and Chemical Engineers Division of the Refinery Program	
9:00 A.M.	**Independent Petroleum Association of America**	RICE HOTEL
	Interstate Oil Compact Commission	RICE HOTEL
	"Petroleum Day" — Proclamation by Governor James V. Allred	
7:00 P.M.	**Annual Banquet—Independent Petroleum Association, Sponsored by the Houston Wildcat Committee**	RICE HOTEL
7:00 P.M.	**U. S. Army Band, Fort Crockett, Concert**	COLISEUM
7:00 P.M.	**U. S. Army Aviation Division Searchlight Display and Sound - Detector Maneuvers**	COLISEUM

SATURDAY, OCTOBER 16

	New Patents and Inventions Committee, "Judging of New Patents"	
12:30 NOON	**Safety and First Aid Committee—Luncheon**	
ALL DAY	**First Aid Contest**	COLISEUM
	Football Game—Rice Institute versus Tulsa University	RICE STADIUM
	Independent Petroleum Association of America	
7:00 P.M	**U. S. Army Aviation Division Searchlight Display and Sound - Detector Maneuvers**	COLISEUM
7:30 P.M.	**Humble Oil & Refining Company Glee Club**	COLISEUM

Directors of Show Outline Points of Interest on Gulf

By NEIL WILLIAMS

HOUSTON, Tex., Oct. 4. — The varied and extensive petroleum activities of the Gulf Coast furnish a fitting setting for the Oil-World Exposition which opens in Houston October 11. In this district is concentrated the greatest array of large refineries in the world. Along the coast are spread enormous tank farms and terminals, into which converge numerous major pipe line systems, radiating to all parts of the Southwest. Over the fast loading docks which line the deep water channels to the sea, hundreds of thousands of barrels of oil, destined to all parts of the globe, are handled daily. Drilling and production operations in the district are of wide scope, and reserves being proved represent a substantial part of the industry's known available crude supply.

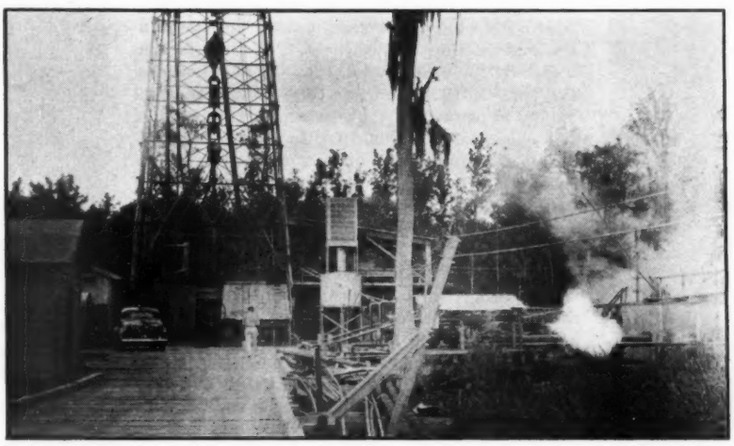
Thirty-four refineries with a combined crude throughput capacity of more than 1,000,000 bbls. daily are running on the Gulf Coast. Of these 10 have capacities of more than 20,000 bbls. daily each, with four of these having capacities of more than 100,000 bbls. each. Within the last several years, refinery building has been undertaken on a large scale. Important new plants have been erected and other plants generally have been modernized and enlarged. Represented in Gulf Coast refineries are the latest developments in plant design, types of equipment, and operating practices.

With the markets of the world open to it through its many ports and terminals, the Gulf Coast has been a natural outlet for the Southwest's crude production. Exclusive of numerous local lines within the district, 22 major trunk pipe line systems now converge in this district, finding their outlet at the various large refineries, tank farms and other oil concentration points. Total capacity of these lines is more than 1,200,000 bbls. daily. Among the many lines represented in these systems is one gasoline line, which brings its daily supply of natural gasoline and butane mixtures from the East Texas field to one of the large refineries.

Gulf Coast loading docks and terminals, where constant streams of tankers are going and coming, are among the most modern, efficient and fastest to be found anywhere. More than 42,000,000 bbls. of crude and refined products are being moved over these terminals monthly for coastwise and export shipment. During the first six months of this year shipments totaled 279,087,556 bbls.

Crude Reserves High

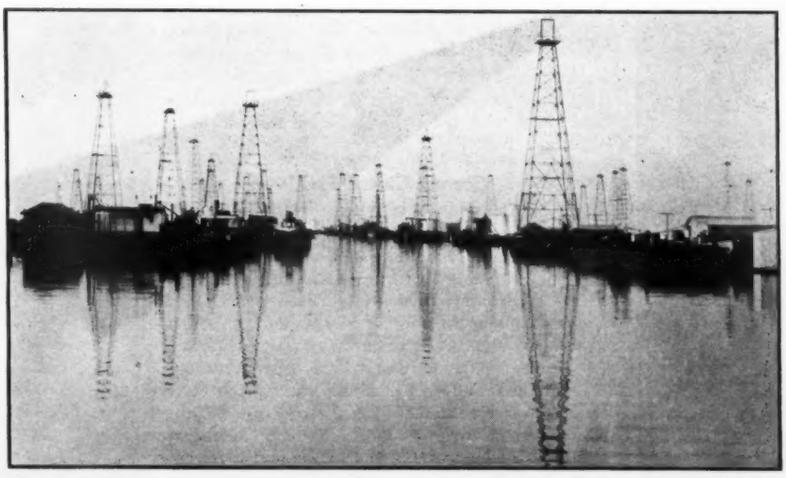
Estimated crude reserves already proved on the Gulf Coast amount to more than 3,575,000,000 bbls. Of this, more than 2,570,000,000 bbls. is in fields of the Upper Texas Gulf Coast district within a radius of less than 100 miles of Houston. Of the remainder, more than 522,700,000 bbls. is in fields of Coastal Louisiana, with 482,300,000 bbls. in fields of the Lower Texas Gulf Coast district. With additional new fields constantly being brought in there now are more than 200 producing fields on the Gulf Coast. There are at least 40 other areas, in which production either has been proved but which are not now producing, or salt domes, potentially but not yet productive, have been found. Twenty-six of the 200 fields actually producing on the coast have been opened this year, 10 being in the Lower Texas Gulf Coast district, and eight each in the Upper Texas Gulf Coast and the Louisiana Coastal areas.



Deep Test, Gibson field, Terrebonne Parish, La.

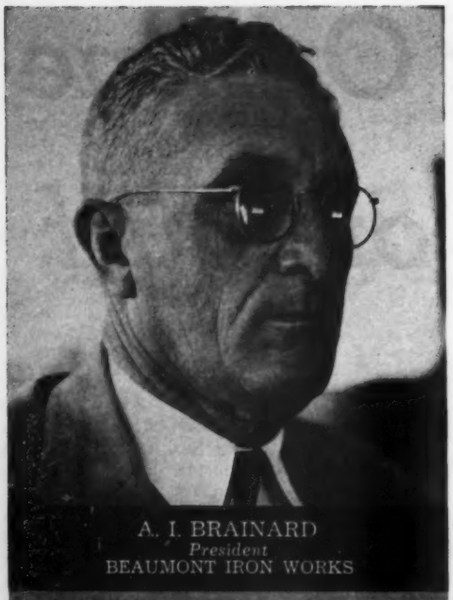
Eighty-four of the 200 odd producing fields on the Gulf Coast are in Upper Texas Gulf Coast district, of which Houston is the approximate geographical as well as operating center. It was in this part of the coast, with the discovery of Spindletop, near Beaumont, in 1901 that coastal oil development got its start, and in which the most extensive development has taken place. The active exploration and wildcatting play which has been going on in the Lower Texas Gulf Coast and in Coastal Louisiana the past several years has been swelling rapidly the list of fields in those districts. In the Lower Texas Coast there now are 61 fields while in Coastal Louisiana there are 55.

Heading the list of fields on the Gulf Coast from a point of size and extent of reserves are Conroe, Anahuac and Hastings. Conroe, about 40 miles north of Houston, was opened in 1931, and has a reserve estimated at more than 600,000,000 bbls. Its principal development took place in 1932 and 1933, resulting in the proving of approximately 20,000 acres. It is practically drilled up now, new drilling being limited to the fringes. Considering the number of operators and diversified lease ownership, the field is one of the most systematically developed, effectively controlled, and efficiently and scientifically produced fields on the Gulf Coast. Producing from the Cockfield, Conroe proved the first important Eocene field, and its discovery and development was the incentive for the launching of the "Conroe trend" play, a major phase of Gulf Coast developments.



New Iberia field, Iberia Parish, Coastal Louisiana

To be seen at Conroe is the widely publicized "crater area" and, in particular, the now dormant Harrison & Abercrombie crater well, which flowed unrestrained for over a year from a large crater caused by a blowout. The crater area covers



A. I. BRAINARD
President
BEAUMONT IRON WORKS

S. P. BROWN
Vice-President
HUGHES TOOL CO., HOUSTON

AL BUCHANAN
President
A. A. BUCHANAN DRILLING CO.,
SAN ANTONIO

a substantial area in the middle part of the field and was so named because of the succession of blowouts due to highly gas charged shallow sands. It is pitted with several large and many small craters, all inactive at this time. The high gas pressure in the shallow sands caused much trouble and worry at the time, but the problem of drilling through them finally was overcome. The Harrison & Abercrombie crater well was taken over by a group of operators in that area and was killed by a directionally-drilled relief well. The latter marked the introduction of directional drilling on the Gulf Coast, a phase of operation which since has received considerable attention and which now is common practice. Killing the crater well at Conroe was the first undertaking of its kind, and the success of the project was widely heralded. Since, a number of bad crater wells have been killed in the same way.

Anahuac Field

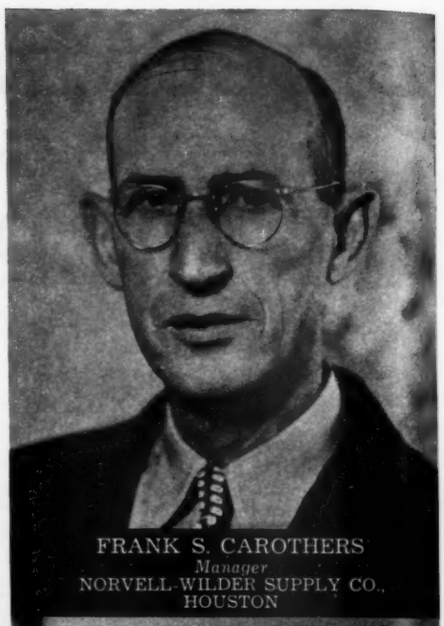
Anahuac, the second largest field, is approximately 50 miles east of Houston in an airline, but due to the round-about way of reaching it, the distance is about 70 miles by highway. This field has a producing area of around 8,000 acres with recoverable reserves estimated conservatively at 350,000,000 bbls. Production is from the Marginulina-Frio section at 7,000 feet. The field is controlled by three companies, Humble Oil & Refining Co., Gulf Oil Corp. and Sun Oil Co., with approximately 75 per cent of the acreage held by Humble. It was opened in March, 1935, and from the beginning a consistent development program has been followed. At present, with 200 producing wells, the field is a little more than half drilled up. A 20-acre spacing program is being followed uniformly. Four rigs now are being run in the field.

Of particular interest in this field has been the efficiency which has been attained by Humble Oil & Refining Co. in its operations. This company has directed much attention toward minimizing time required for drilling and completing wells. Facilities have been provided and practices adopted which have as their purpose the speeding up of drilling, cost considered, and developing and producing the field with the greatest efficiency possible. Unitization of equipment has been carried out to a high degree to expedite moves from location to location.

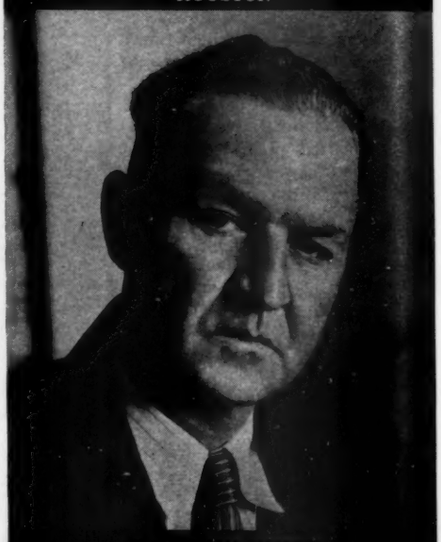
A close second to Anahuac in size and extent of reserves, the Hastings field, on the Brazoria-Galveston County line, about 25 miles south of Houston, is in the midst of an active drilling play. Nearly 30 rigs are running in this field, the greatest concentration of drilling activity on the Gulf Coast, except for the Saxet area in the Lower Gulf Coast, where upwards of 45 rigs are working. This field has been developed on a 10-acre unit basis, and in the northwest portion, where a second and slightly shallower producing sand has been proved at 5,800-5,900 feet in addition to the regular sand at 6,000 feet, "twin" drilling of units is being carried out. Recent substantial extensions farther northwest have been the incentive for additional drilling activity.

Corpus Christi Fields

In the Lower Gulf Coast district, the principal fields are concentrated around the immediate Corpus Christi area, including Saxet, Flour Bluff, McCampbell, Plymouth, Taft and Heyser. In each of these important reserves have been proved and active development is under way. In Coastal Louisiana, active drilling is under way around various of the older salt domes and fields in the development of new and deeper sands. Among the older fields receiving the most attention from a drilling standpoint at this time are Jennings, Hackberry and New Iberia. Among the larger and more important fields from the angle of future reserves are Iowa, Tepetate, Lafitte and Caillou Island. The



FRANK S. CAROTHERS
Manager
NORVELL-WILDER SUPPLY CO.,
HOUSTON



S. T. CHILDRESS
Vice-President and General Manager
RIO BRAVO OIL CO., HOUSTON

W. H. CURTIN
President
W. H. CURTIN & CO., HOUSTON

K. W. DAVIS
President
MID-CONTINENT SUPPLY CO.,
FORT WORTH

H. W. GWILLIAM
Vice-President
OHIO OIL CO., HOUSTON

Photo by Gittin

R. H. HARGROVE
Vice-President
UNITED GAS PUBLIC SERVICE CO.,
HOUSTON

majority of the newer fields are owned by single companies, or jointly by a few companies, with development in them being carried on consistently and conservatively.

Tepetate, about 50 miles northeast of Lake Charles, in Acadia Parish, and operated by Continental Oil Co., is a field in which advanced production practices have been adopted. In the field, a crude stabilization plant, the first of its kind, has been in operation the past year in conjunction with a gasoline recovery plant. More recently, a repressuring project has been put in operation, in which residue gas from gasoline plant is being returned to the reservoir. As the producing sand is at 8,300 feet, this is the deepest repressuring has ever been undertaken.

Deep Production

Lafitte, Jefferson Parish, is a field of deep production. It is producing from two sands, one at 9,600 feet and the other at 10,000 feet. With the Texas Co. as the sole operator, 14 wells have been completed in this field, which represents the greatest aggregation of production at such depths in the world. The field is in the isolated marsh lands, and is accessible only by water. All operations are carried on by barges and boats through canals dredged through the area. The wells are drilled with large drilling barges. A gasoline plant has recently been placed in operation in the field. This was erected on a piling foundation. All tankage, the field camp, pipe line pump station and other such facilities also are placed either on piling or matting foundations.

Maritime Fields

Caillou Island is one of a group of maritime fields operated by Texas Co. on the coast of Terrebonne Parish. This particular field is in the open water of Terrebonne Bay fronting the Gulf of Mexico and is entirely out of sight of land. There isolated from the other field, except by boat, has been built up a daily production of 18,000 bbls. from 32 wells. Two rigs, permanently mounted on barges, are kept in operation in continuation of development.

Altogether, there are more than 8,800 producing wells on the Gulf Coast, a net increase of more than 1,675 wells since January 1. More than 5,225 of these wells are in the Upper Texas Gulf Coast district within a 75-mile radius of Houston. Approximately 1,000 are in Coastal Louisiana, with the remainder in the Lower Texas Gulf Coast. Daily production of these wells, all under highly curtailed rates of flow, amounts to 560,000 bbls., which is 120,000 bbls. greater than at the opening of the year.

Indicative of the widespread development, 445 active operations are reported in the district. This represents 72 more operations than at the opening of the year. Except at Saxet, where there are 45 rigs running, Hastings with 30 rigs and McCampbell with 20 rigs, these operations are spread out over the entire area. Most fields on the coast are owned by single or relatively few companies, and seldom are there more than a few rigs running in any one area. Since the early part of this decade there hardly has been a slackening of exploration and development on the Gulf Coast.

Geological Crews Busy

The Gulf Coast, where geophysics had its inception in this country, continues the most active district in geophysical exploration. More than 145 crews, the greatest number in many months, are now working in the district, despite the fact the district has been worked and reworked several times in successive plays. Broadening conceptions of structural potentialities of the Gulf Coast, finding of new types of fields, greater proficiency in interpretations of findings and improved instruments and methods are constantly leading the way

L. O. KOEN
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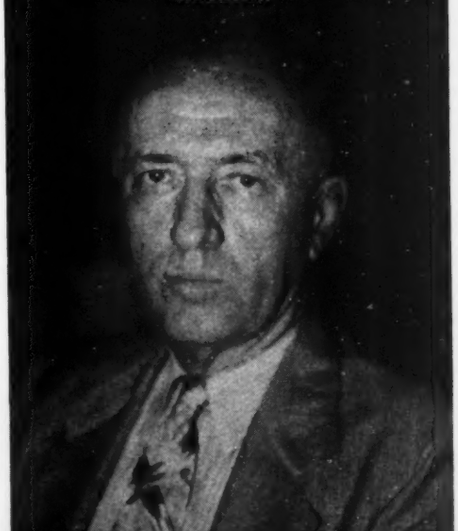
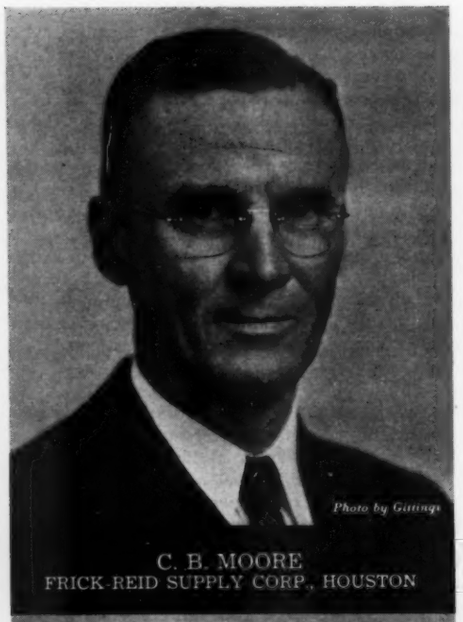
W-K-M CO., Inc., HOUSTON

GAGE LUND
Manager
STANDARD OIL CO. OF TEXAS,
HOUSTON



A. M. McCORKLE
Vice-President
STANOLIND OIL & GAS CO., HOUSTON

A. T. McDANNALD
Owner
SMITH & McDANNALD, HOUSTON



C. B. MOORE
FRICK-REID SUPPLY CORP., HOUSTON

C. R. PATTERSON
Manager
NATIONAL SUPPLY CO., HOUSTON

ROBERT J. MILLER
President
ROBERT J. MILLER CO., HOUSTON

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CONTINENTAL OIL CO., HOUSTON

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TEXAS IRON WORKS, HOUSTON

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TEXAS RUBBER & SPECIALTY CORP., HOUSTON

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GRAY TOOL CO., HOUSTON

M. W. PHELPS
Sales Manager
OIL WELL SUPPLY CO., HOUSTON

JOE H. RUSSELL
Assistant Vice-President
GULF OIL CORP., HOUSTON

W. B. SHARP
President
MISSION MFG. CO., HOUSTON

T. E. SWIGART
Vice-President
SHELL PETROLEUM CORP., HOUSTON

toward continued and renewed geophysical exploration.

The science of geophysics, introduced to the Gulf Coast as early as 1922, has played an especially vital part in the development of this district. Due to the flat coastal plain of recent deposition, exploration by surface geology is impossible. Although many of the original old shallow fields and domes were indicated by varied surface evidence, such as domal rises, seepages, paraffin dirt, etc., locating of most of the present prolific and deeply seated types of fields has been possible only through geophysical exploration.

On the Gulf Coast is the greatest concentration of deep sand development in the world. In this district there are 10 fields with 37 wells in which production is obtained at depths greater than 9,000 feet. Two more fields are due to be added shortly. Of the 10 fields, four have production below 10,000 feet, with one of these below 11,000 feet. The latter, Lirette, Terrebonne Parish, has one well (Humble Oil & Refining Co. No. 1 Ellender), the deepest producer in the world. It was completed at a depth of 11,615 feet, although the well originally was drilled to a total depth of 12,165 feet. Of the 37 deep wells, 10 are producing from depths below 10,000 feet (one below 11,000 feet); 10 at depths between 9,500 feet and 10,000 feet, and 17 between 9,000 feet and 9,500 feet.

Deep Wells in Lafitte

Lafitte, Jefferson Parish, La., and Old Ocean, Brazoria County, Tex., head the list of these deep fields in number of wells and in extent of reserves proved. Lafitte, as mentioned, has a total of 14 wells, the shallowest being 9,406 feet. Five of the 14 wells are below 10,000 feet with a sixth now testing. Old Ocean has five wells below 9,500 feet, three of these being below 10,000 feet. Considering the extent of the productive areas proved up, major fields have been established at both places.

In all, 124 tests on the Gulf Coast have been drilled deeper than 9,000 feet. Four of these have been drilled below 12,000 feet, three others below 11,000 feet, and 29 more below 10,000 feet. Of the remainder 30 have been drilled to depths between 9,500 feet and 10,000 feet. Although the deepest test in the world is not on the Gulf Coast, that record being held by Gulf Oil Corp. No. 103 McElroy in West Texas which drilled to 12,786 feet, several tests have been drilled to within a few hundred feet of that, the deepest, and the second deepest test in the world, being Texas Co. No. 1 Bayou Sale at Bayou Sale (Horseshoe Bayou), St. Mary Parish, Louisiana. Total depth of this well was 12,261 feet. Following the sticking of drill stem and a blowout at that depth, this hole was plugged back and sidetracked to 10,929 feet. The casing then was perforated at 10,863-73 feet, and the well completed as the discovery well of that field. Close behind this well in total depth are Continental Oil Co. No. 1 Hebert at Abbeville, Vermillion Parish, Louisiana, drilled to 12,216 feet; Humble Oil & Refining Co. No. 1 Ellender, Lirette, Terrebonne Parish, 12,168 feet, and Stanolind Oil & Gas Co. No. 1 Stoval, South Abbeville, Vermilion Parish, 12,133 feet. It will be noted that the Louisiana Gulf Coast area leads the entire district in deep drilling.

Exploration and development on the Gulf Coast is carried on under a wide range of conditions, including dry land, swamp, marsh and open water operations. Receiving attention at this time are operations getting under way in the open Gulf of Mexico. Superior Oil Co. is starting a deep test a little over a mile off the shore of Cameron Parish, Louisiana. There, at a cost of more than $75,000, this company has erected an "island" on piling foundation. Humble Oil & Refining Co. has a permit to drill on a prospect off the shore of Jefferson County, Texas, although at this time actual work is not under way. For some time, operators

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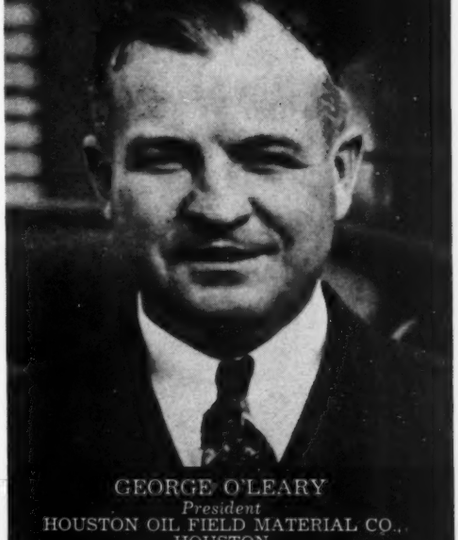
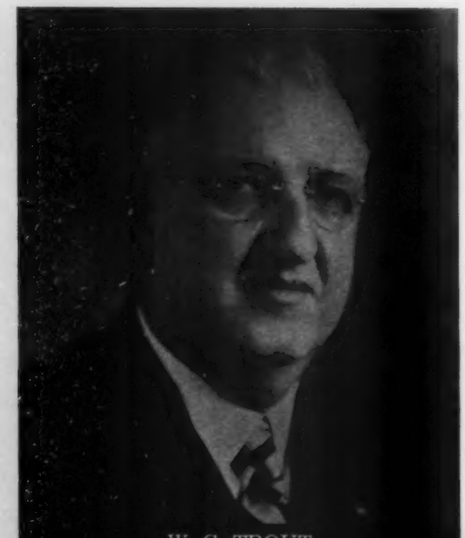
President
MAINTENANCE ENGINEERING CORP., HOUSTON

MARTIN O'BRIEN
Vice-President
REPUBLIC PRODUCTION CO., HOUSTON



GEORGE O'LEARY
President
HOUSTON OIL FIELD MATERIAL CO., HOUSTON



W. C. TROUT
President
LUFKIN FOUNDRY & MACHINE CO.
LUFKIN

RICHARD R. BLOSS
President
INTERNATIONAL DERRICK & EQUIPMENT CO. OF TEXAS, BEAUMONT

JULIUS FOHS
President
FOHS OIL CO., HOUSTON

have been interested in the potentialities of production in the Gulf of Mexico off the Louisiana and Texas coasts, and quite a bit of leasing of water bed out as far as three miles from shore has been done. Geophysical exploration which has been carried on along the coast has indicated the existence of a number of favorable prospects, just offshore.

Until now no attempt has been made to drill on any of these, except from locations on the beaches. However, water operations are not new to coastal operators, as exploration and development have been carried on in some of the open bays and lakes and other water beds along the coast for a number of years. Several of Coastal Louisiana's most important fields are in water beds. Most prominent of these is Caillou Island, at the mouth of Terrebonne Bay, Terrebonne Parish, Louisiana. This field is in 9 to 15 feet of water and entirely out of sight of land. It is one of a group of water or marsh located fields being developed by Texas Co. in a vast isolated portion of southeastern Louisiana.

Development Has Been Interesting

Development of these fields has been one of the most interesting projects ever undertaken on the Gulf Coast. All these fields are accessible only by water. From a single base located south of Houma, the last point of dry land, an elaborate fleet of boats is maintained, consisting of barges, tugs, luggers, launches and speed boats. The nearest field to the base is Lake Barre, in the middle of Lake Barre, the upper portion of Terrebonne Bay. It is 18 miles from the base. Large, submersible drilling barges are used in drilling the wells and for pumping wells in several fields, pumping units mounted on barges are provided.

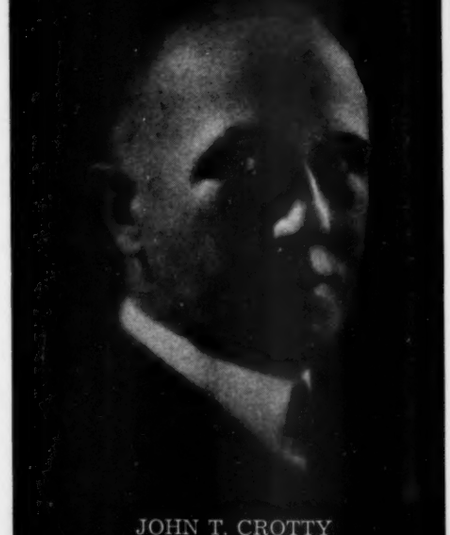
Other companies are carrying on similar operations in various fields of Coastal Louisiana although not on such an extensive scale as the Texas Co., which pioneered these maritime fields. However, all companies expecting to do much work in Coastal Louisiana maintain maritime equipment and facilities.

Assembled on the Gulf Coast is an impressive array of the largest, heaviest, and the most modern and efficient types of drilling equipment. In any of the deeper fields and on the major wildcat operations such equipment is to be found. Coastal operators have sought to provide every facility possible to expedite deeper drilling, and to insure greater control and protection over the hazards and problems faced in modern development at low levels. Steam rigs are the most widely used, although lately additional large mechanical rigs, including full diesels and diesel-electrics, are being brought into the district, and are in use at Dickinson, Jennings, and on several wildcats.

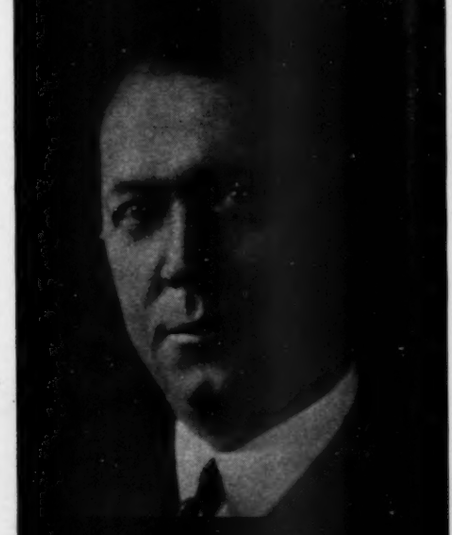
Control of high pressures is one of the most important phases of modern coastal operations. With deeper drilling, increasingly greater pressures are being encountered. Wells with surface pressures of 3,000 to 4,000 pounds no longer are uncommon. Pressures higher than that have been encountered in scattered wells, and in one instance a pressure of 5,200 pounds was recorded. Such pressures have necessitated the development of extra high test and heavy blowout prevention and well flowing equipment, as well as the provision of special facilities and methods for handling the production of the wells. Production of high-pressure gas-distillate wells to prevent freezing and to reduce pressures to a point that efficient recovery of distillate can be obtained is of particular interest. Among the fields in which high pressures are being effectively handled are Old Ocean, Brazoria County; Dickinson, Galveston County; Labelle, Jefferson County; Seabreeze, Chambers County.

Development on the Gulf Coast has been marked by numerous bad blowouts. Gapping craters which remain in no small number of fields and areas bear witness to these blowouts. The loose, unconsoli-

R. W. PACK
Manager
SUN OIL CO. AND SUN PIPE LINE CO.
BEAUMONT

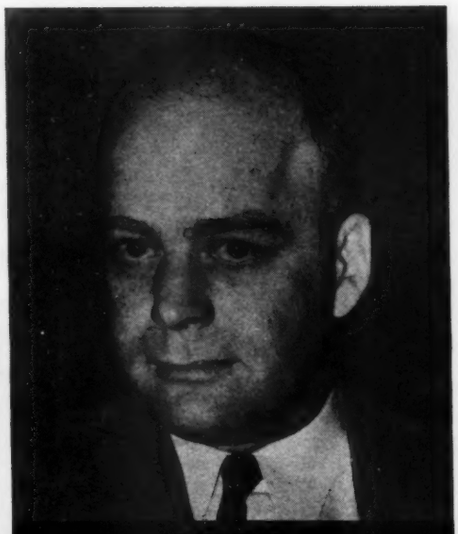


JOHN T. CROTTY
President
REPUBLIC SUPPLY CO., HOUSTON



ED SALRIN
Vice-President
TIDEWATER OIL CO., HOUSTON

V. E. ASHFORD
Manager
PARKERSBURG RIG & REEL CO., HOUSTON

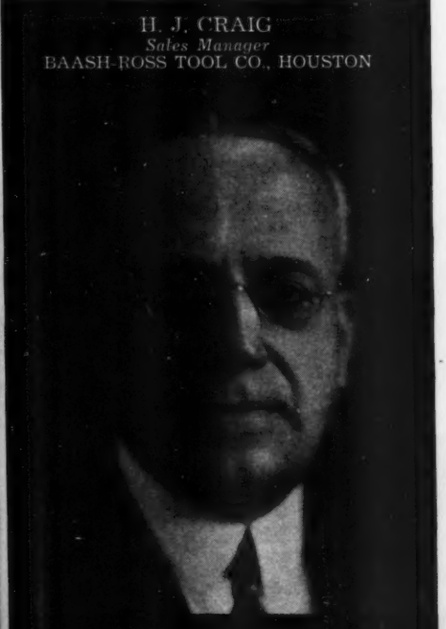


TOM PEW
Vice-President
GENERAL CRUDE OIL CO., HOUSTON

E. E. SWOPE
Vice-President and Manager Refineries
MAGNOLIA PETROLEUM CO., BEAUMONT

H. J. CRAIG
Sales Manager
BAASH-ROSS TOOL CO., HOUSTON

J. H. TEER
General Manager
LAYNE & BOWLER CO., HOUSTON



T. J. DONOGHUE
Vice-President
THE TEXAS CO., HOUSTON

F. H. THRAILKILL
Manager
CONTINENTAL SUPPLY CO., HOUSTON

dated formations, characteristic of the coast, offer little resistance, and once a well gets out of control cratering usually results. Charging of shallow sands with high-pressure gas from the lower horizons usually occurs, creating hazardous drilling conditions for some distance around a blowout well. An active crater area now exists in the Sullivan area, south of the Aqua Dulce field, near Corpus Christi. Here within an area of 75 acres are a half dozen craters, formed following a blowout in a deep test last December. The original blowout and crater still is out of control. At Greta is another crater well which has been blowing wild for nearly a year and a half. This crater, located in a railroad right of way, engulfed the adjoining railroad on one side, and the highway on the other.

Heaving shale drilling operations are of particular interest. Hundreds of thousands of dollars have been spent by coastal operators in combatting shale. On heaving shale jobs, the most elaborate and complete installations of equipment are used, and special methods are followed and precautions taken to insure uninterrupted operation.

On the Gulf Coast can be seen some of the most efficiently produced fields in existence. As many of the fields on the Gulf Coast are owned by single companies, or groups of companies jointly. This has facilitated systematic and conservative development, and carrying out of production programs designed to conserve reservoir energy, and prevent waste. In these fields some of the most advanced production methods are to be found. Repressuring operations are being carried on in six fields, including Sugarland, Raccoon Bend, Saratoga, Tepetate, Gillis and East Hackberry. The former two fields were first in which repressuring was undertaken, such operations being started in them during their respective early lives in 1929. The efficient results obtained at these fields, especially Sugarland, where there is no loss of gas, has received much attention. Tepetate is the most recent field in which repressuring has been undertaken. There gas is being returned to the producing horizon at a depth of 8,300 feet.

Directors of Oil-World Exposition whose pictures were not available: Harry C. Hanszen, producer, Houston; D. B. McDaniel, owner, Gulf Coast Drilling and Production Co., Houston and J. R. Parten, president, Woodley Petroleum Co., Houston

Photograph of the new Coliseum as construction was being hurried to be in readiness for the opening of the Oil-World Exposition

Oil-World Exposition Will Open the New Coliseum

The Oil-World Exposition which opens October 11 will be the first event to be held in Houston's new municipal coliseum. A formal ceremony marking the official opening of the coliseum will be held at that time with various well known speakers on the program.

Costing $1,337,000, the coliseum is one of the finest and largest structures of its kind in the Southwest. It is spacious enough to house adequately a big time circus, large national conventions, and other big-scale attractions, and makes a desirable home for the Oil-World Exposition.

The building, of steel, brick and stone construction, is composed of two distinct auditoriums, largest of which will be 370 feet long and 251 feet wide. In addition it has a number of auxiliary halls and rooms where smaller meetings and events can be held separately from those in the larger auditoriums.

Clear exposition space in the main auditorium approximates 74,000 square feet of floor space. When used for seating, this has a capacity of 12,000 persons, which with the 5,500 seats in encircling balcony, gives the main auditorium a total seating capacity of 17,500 persons. The smaller auditorium extending from the main auditorium has a seating capacity of an additional 2,200 persons.

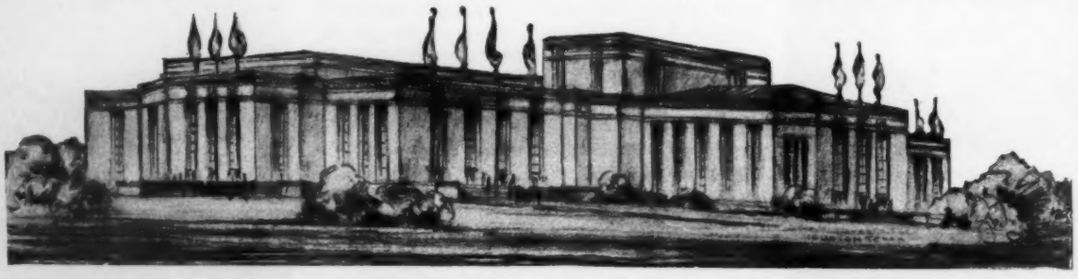
Reservation for the use of the coliseum for the oil exposition was made last November 18, long before actual construction of the building was started. Previous oil shows in Houston have been held in a large frame convention hall, which was torn down to make way for the present coliseum on the same site.

Exposition visitors will not find the building completed. However, with walls up and a roof, construction is sufficiently advanced for use of the building for oil exposition purposes, and the construction now going on will not interfere with exhibitors or visitors.

As the date for the opening of the show approached it was found that even the spacious accommodations provided by the new building would not be sufficient to take care of all who wished to exhibit. Outdoor space was provided for the larger exhibits and it was necessary to resort to erection of a large tent to accommodate additional equipment. The main entrance to the exposition will be through this tent, which will thus be made an integral part of the show.

Every effort has been made to care for the comfort, convenience and entertainment of the visiting oil men during the week of the exposition. In addition to the exhibits and the various meetings, technical and general, which compose the exposition program proper, local hosts have provided a variety of recreation and sightseeing to round out the occasion.

The tent will be waterproof, with a wooden floor, booth partitions, electric outlets, water, gas and signs.



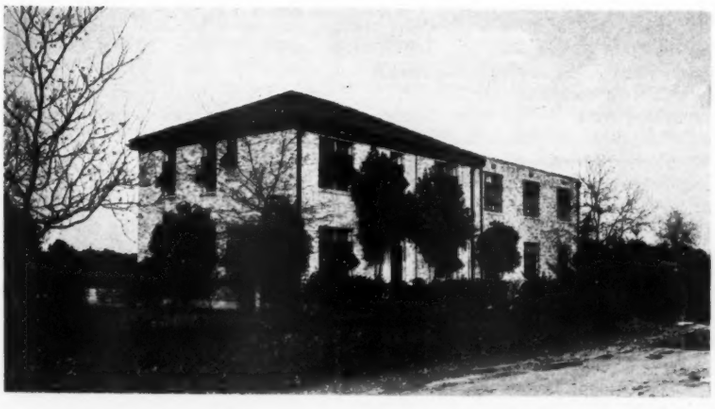
Original architects drawing of the completed design for the new Coliseum at Houston, Tex., which will be put to its first public use by the Oil-World Exposition, opening Monday, October 11

See EVERYTHING at Houston

★ All that's new in oil field equipment and engineering practice will be on display at the Houston Oil Show. An education and an experience that will last a lifetime awaits the visitor to the channel city.

★ Methods of manufacture, as well as the finished product, are important in the oil industry. While in Houston, you are invited to visit the modern fabricating plant of the Wyatt Metal & Boiler Works. Here you will see modern machines at work turning out equipment for the petroleum industry.

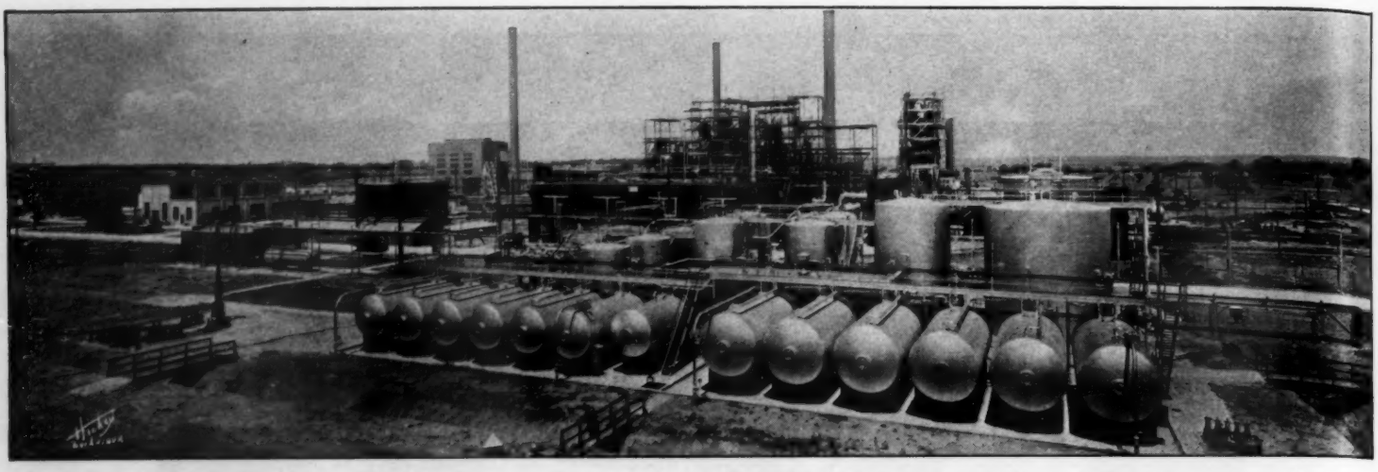
Here, too, you will receive a warm welcome. Be sure to visit us. See *everything* at Houston.



Offices and plant of Wyatt Metal & Boiler Works located at Washington Avenue Underpass of Southern Pacific and M.K.T. crossing.

Telephone: Taylor 6145

WYATT METAL & BOILER WORKS
PLANTS AT DALLAS AND HOUSTON



Latest major refinery to be constructed on the Gulf Coast. New 18,000-bbl. plant of the Atlantic Refining Co. at Atreco, Tex. Completely new, from the modern, air-conditioned offices and laboratories on the left, to the extensive storage and treating facilities in the foreground. It is located on the Neches River between Beaumont and Port Arthur, within sight of two other major refineries

Cross Section of Oil Refining Industry Seen on Gulf Coast

By GEORGE WEBER

To the oil show visitor whose interest lies in the refining branch of the industry the Gulf Coast has a particular appeal. Within a short radius of Houston may be seen the largest plants of the country, embracing in their operations every phase of modern refining technology. Large complete refineries predominate, illustrating the engineering and management of complex systems of operations, but for the small refiner who feels more at home on a one-acre lot, a number of modern moderate sized skimming and cracking plants dot the coastline from the Mississippi to the Rio Grande.

For variety of refining processes, the visitor could scarcely pick a better section. Every operation, from shell-still fractionation down through combination cracking, and solvent refining to polymerization and hydrogenation is carried out in Gulf Coast plants. At the same time, a glimpse may be had of pipe line terminal operation, barging and tanker loading, for every Gulf Coast refinery is closely associated with water transportation.

Immediate to Houston, and situated along the ship channel, are eight refineries, ranging in capacity from 3,000 to 120,000 bbls. An automobile trip not exceeding 75 miles will take the visitor to any or all of these refineries from Houston.

Within the city limits at Harrisburg, is located the newly modernized 15,000-bbl. refinery of Eastern States Petroleum Co., Inc. Acquired from Deepwater Refineries, Inc., which specialized in the manufacture of quality lubricating oils, the Eastern States plant features a new Dubbs cracking unit which operates on coastal and East Texas crudes.

Further down the channel at Sinco, Sinclair Refining Co. operates a 44,000-bbl. refinery, and at Pasedena is located the 15,000-bbl. complete plant of Crown Central Petroleum Corp. Both refineries maintain oil docks on the channel, the Sinclair terminal accommodating three vessels, and the Crown Central dock one ship.

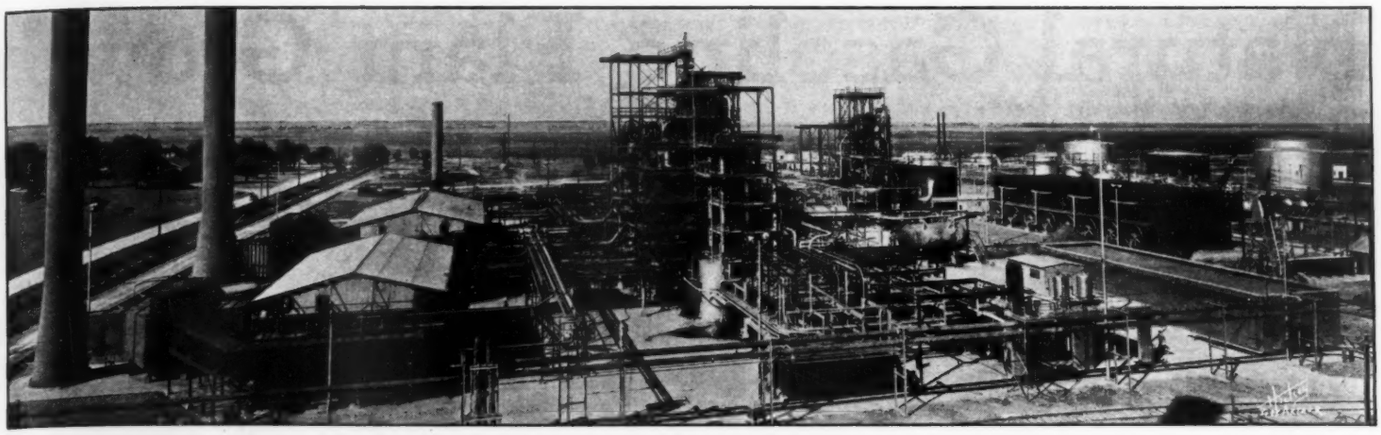
About 1 mile from the La Porte highway, at Deer Park, Shell Petroleum Corp. has recently completed construction of extensive new improvements in its 70,000-bbl. refinery. Besides the main projects, including a new power plant and combination cracking unit, facilities throughout the plant have been modernized and enlarged. The new power plant is of interest because of the novel design of the boilers. Both Vogt units are constructed in the open, in the same manner as crude furnaces, without use of the conventional brick housing. Complete control and research laboratories and a plant employed in the manufacture of iso-octane are other interesting points at the Shell refinery.

By turning off the La Porte road just below Deer Park, and entering San Jacinto battleground, the visitor may see the imposing San Jacinto shaft now nearing completion, before crossing the channel by ferry at Lynchburg and continuing to Baytown.

At that point is situated the 120,000-bbl. refinery of Humble Oil & Refining Co. Complete refinery operations are carried out at that plant. Besides extensive dock and loading wharf facilities fronting on the ship channel, the refinery is interesting from the standpoint of polymerization. A new unit is in initial operation at Baytown, processing gas from Humble's natural gasoline plants in East Texas, Conroe and Tomball fields.

Baytown community itself is of no little interest. Company and private homes, well-built and pleasantly located in a wooded section about the town and overlooking the bay and channel, illustrate the high standard of living maintained in Gulf Coast refining centers.

A few miles from the Houston-Galveston highway, at Texas City, is the refinery of Pan American Refining Corp. The newest of the large refineries in the Houston district, Pan American's plant incorporates the latest results of refinery engineer-



Furnaces, cracking units, and polymerization plant (right background) viewed from atop the power plant at the Atlantic Refining Co.'s new refinery at Atreco. The new type forced-draft cooling tower at the right will handle all streams from the refinery cooling boxes. Crude and stock storage are maintained at the company's tank farm to the right of the plant, where two large trunk lines terminate

ing and equipment design. The plant is a model of modern refinery planning. Two large combination cracking units accomplish in a small space, what older plants of the same capacity require several acres to produce. The industry's largest polymerization plant is at the Pan American refinery. It processes, by the catalytic method, the vapors from the two cracking units, and will handle, in addition, the gases from the third combination cracking plant now under construction.

Toward the prevailing wind from the refinery proper are located the offices, laboratories, shops and warehouses, and running nearly the full length of the refinery is a 1,960-foot cooling tower of California redwood, the longest installation of its kind in existence.

Southport Refinery

Also at Texas City, a modern Donnelly type cracking unit is in operation at Southport Refining Co. plant. That new installation is on the site of the former Pierce refinery, one of the first plants in the district. Another point of interest at Texas City is the model experimental T.V.P. unit at the Petroleum Conversion Corp. plant, which adjoins the Pan American refinery site.

To the east of the Houston district lies the greatest concentration of the American refining industry. Known generally as the Sabine area, the district lines the navigable Neches River and Sabine Lake. A total of six large refineries, with combined crude capacity of 430,000 bbls. per day, operate at near capacity in that section.

At Beaumont, Magnolia Petroleum Co.'s 120,000-bbl. refinery is located. The principal feature of that plant is the 32,600-bbl. combination cracking unit, one of the largest in the industry, and also one of the first of the present large plants.

The Pure Oil Co. has recently completed a widespread construction program, and as a result, the Smiths Bluff refinery is one of the most modern in the section. A 10,000-bbl. crude distillation unit, employed in the manufacture of special solvents from East Texas and Van crudes is located at that plant. Also operating there is a new 14,000-bbl. combination skimming and cracking unit, designed under Gasoline Products Co. patents.

Texas Company Plants

Texas Co. has two refineries in the Sabine area. The largest plant is at Port Arthur. It incorporates every branch of refining, and operates, in connection, an extensive shipping terminal on an island in Sabine Lake. At that point products are moved from the refinery in pipe line. Lubricants and other special products are packaged and packed on the island, and the company operates a complete plant for the manufacture of cans used in lubricating oil marketing. The other Texas Co. plant is at Port Neches near the mouth of the Neches River. The principal product of that plant is asphalt, refined from coastal and foreign crudes.

At Port Arthur, Gulf Oil Corp. operates its principal plant. The refinery, one of the oldest in the country, was for many years the largest plant in the world. Continuous construction and expansion have kept operations at the plant abreast of modern methods, and the most extensive facilities for the manufacture of quality lubricating oils on the Gulf Coast are found at the Port Arthur refinery. Also under construction at the plant is a unit to be used for the synthesis of iso-octane.

The only completely new plant to be built in the Sabine area in recent years is the Atlantic Refining Co. plant at Atreco. Located on the Neches River at the termini of two Atlantic trunk pipe lines, the refinery processes East Texas, West Texas and coastal crudes, and ships the finished products from the local oil docks to coastwise and export markets. The plant, entirely new from the offices, warehouses, and laboratories to the large 18,000-bbl. combination cracking unit and polymerization plant, illustrates the compactness of modern large refineries.

A significant trend in refining on the Gulf Coast is seen in the activity under way in the Corpus Christi district. Brought about jointly by the discovery of much new production by independent operators in Southwest Texas, and by the growing market for furnace oils, a substantial refining industry has sprung up in the Lower Coastal area. The plants, now in operation and undergoing construction, consist in general of small skimming units making straightrun products. The design of the plants, and the equipment going into them, however, is of the best in most cases. Built on a basis of steady crude supply, and serving a fast growing market in the east for burning oils, the new industry seems well established, and due for continued growth.

Corpus Christi Plants

The greater share of the new refineries is grouped about the Corpus Christi turning basin and channel to Avery Point. Two of the small plants operate at the terminal of General American Tank Storage & Terminal Co., and a third is building there. Two additional plants are under construction along the channel between the main turning basin and Avery Point, and two plants are operating to the west of the Avery Point basin.

Across Corpus Christi Bay from the city, Humble Oil & Refining Co. operates a 15,000-bbl. plant, comprising crude fractionation and cracking units.

In addition to the small scale units in operation in the immediate vicinity of Corpus Christi, others are located along the coast from Houston to Port Isabel. At the latter point, near the mouth of the Rio Grande River, a 5,000-bbl. skimming and cracking plant refines Rio Grande Valley production, moved to tidewater by an 80-mile line paralleling the river. Other plants are situated at Port Lavaca and Bay City, lying on the coast between Corpus Christi and Galveston.

Magnitude of the oil refining industry is typified in this new photograph of the Gulf Oil Corp. plant at Port Arthur, Tex. This plant has a capacity of 120,000 bbls. a day, an employed personnel of 4,500, and a payroll in excess of $500,000 a month

Natural Gasoline Plant Growth on Gulf Coast New Feature

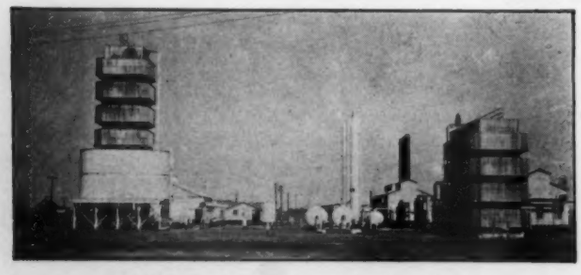
Expansion of natural gasoline plant operations is under way on the Gulf Coast. Five new plants have been built in this district during the past several months, and two others are under construction. In view of the increasing volume of gas production in various fields and the reserves being uncovered and developed, installation of additional plants is due to be undertaken within the near future.

With the addition of these seven new plants, the Gulf Coast is assuming a position of substantially greater importance in the manufacture of natural gasoline. They boost the number of plants in the district to 17, representing an increase of 70 per cent. Approximately 95,000 gallons daily gasoline output capacity is being added, bringing total capacity of Gulf Coast plants to over 315,000 gallons daily.

Natural gasoline plant construction on the Gulf Coast is significant as the manufacture of natural gasoline is a phase of operation comparatively new to the district. Not until recent years has the coast been looked upon as a gas-producing area. Except for Refugio and a few others in the extreme southwestern part of the district, none of the older fields produced any volume of gas. What little gas was found usually was short lived and undependable, and of such low gasoline content building of gasoline plants was not justified.

In the newer types of fields, which now comprise the major development on the Gulf Coast, with their more deeply seated and blanket sands, which comprise the major development, extensive gas reserves are being uncovered, and gas production is becoming an important factor. Modern conservative production practices are prolonging the lives of wells and insuring more dependable supplies of gas, and with the development of market outlets and greater utilization of this gas, incentive is given for installation of gasoline extraction plants.

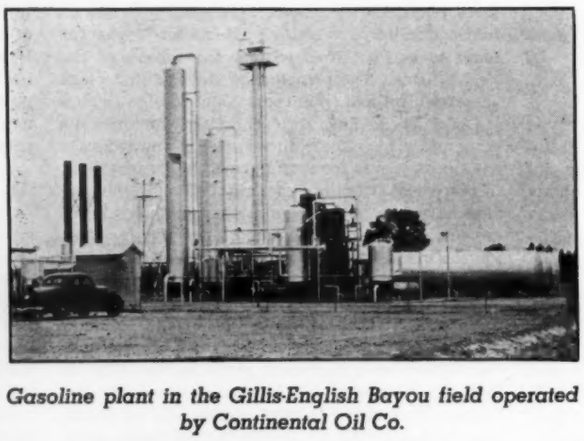
The new plants which recently have been placed in operation are those of Texas Co. at Lafitte, Jefferson Parish, Louisiana; Continental Oil Co., Gillis, Calcasieu Parish, Louisiana; Humble Oil & Refining Co., Tomball, Harris County, Texas; Southern Minerals Corp., Saxet, Nueces County, and Refugio Refining, Inc., LaBlanca, Hidalgo County. The latter is a combination plant, in which the gas-distillate production of the field is processed under high pressure to the plant.



Shell gasoline plant in the Iowa field

Plants under construction are those of Humble Oil & Refining Co. at Dickinson, Galveston County, and the same company at Flour Bluff, Nueces County. Plants for the Heyser field, Calhoun County; McCampbell field, San Patricio County, and Anahuac, Chalmers County, are under consideration, and definite plans for these may be revealed shortly.

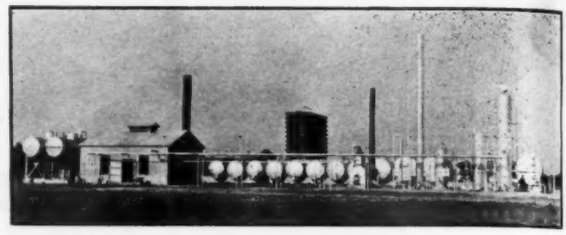
All plants on the Gulf Coast have been built since 1930. The first plant was at Raccoon Bend, Austin County, where, in 1930, it was put in in connection with a sand repressuring project which Humble Oil & Refining Co. undertook. Operation of this plant for gasoline recovery was largely of secondary consideration, the purpose being mainly to strip gas to be used for repressuring of as much gasoline content as possible to facilitate the injection or recycling of dry gas. Even up until this time, no major gas production, except that at Refugio and a limited number of other fields in the lower Gulf Coast district, had been opened.



Gasoline plant in the Gillis-English Bayou field operated by Continental Oil Co.

In 1931 the coast's second plant was put in at Refugio by United Gas Co. Despite the fact that Refugio has produced a considerable volume of gas, supplying several major trunk lines, no attempt had ever been made to recover the gasoline content except in traps and drips to satisfy requirements of gas distributing companies for dry gas. The gas was not considered to have sufficient gasoline content to justify economical operation of a plant.

Until 1933 the Raccoon Bend and Refugio installations made up the list of gasoline plants on the Gulf Coast. In that year another plant was built at Refugio, this being by Clymore Oil, Inc., and one at Conroe, Montgomery County, by Midland Gasoline Corp. By that time Conroe, opened late in 1931, had been developed to such an extent sufficient gas production was available for plant operation. Important reserves had been proved, but under restricted flow and low gas-oil ratios, it was only by accumulation of a large number of wells adequate gas for plant operation was obtained.



Refugio Refining, Inc., combination gasoline plant and refinery in LaBlanca field

Marking an important period of gasoline plant expansion, four new plants were built during 1934, making a total of eight on the Gulf Coast. These plants included those of Humble Oil & Refining Co. at Conroe; Paramount Gasoline Corp. (Danciger Oil & Refineries, Inc.) at Pledger, Brazoria County; Shell Petroleum Corp. at Iowa, Calcasieu Parish, Louisiana, and Refugio Refining Co. at Agua Dulce, Nueces County, the latter since having been acquired by United Gas Co.

No additional plants were built until 1936 when Manhattan Gasoline Co. put in a plant in the Plymouth field, San Patricio County, and Continental Oil Co. one at Tepetate, Acadia Parish, Coastal Louisiana. The latter was put in in conjunction with a crude stabilization system. Residue gas from the gasoline plant serves as a source of supply both for an 8-inch line to Lake Charles and for repressuring operations being carried on in the field.

One of the latest and largest of the new plants this year is that of Humble Oil & Refining Co. at Tomball, northern Harris County. The plant was put in as a part of a project to supply Tomball gas as industrial fuel in the Houston Ship Channel and Port Arthur-Beaumont (Sabine) districts. A new 10-inch gas line, taking residue gas from the gasoline plant, recently was laid from the field to Houston, Baytown and the Port Arthur district.

The plant operates on two types of gas, one type being the wet gas taken from the separators of oil wells, and the other taken from dry gas wells. Gas produced with oil will be taken so far as it is available, as this gas is regular and necessary production of the field. This source of supply will remain fairly constant, depending on oil production allowables. Additional requirements for gas will be met by withdrawals from gas wells as needed. In the processing of the wet gas from the oil wells, recovery of valuable motor fuel, which in the past production at this field has been lost, will be facilitated. Strictly gas wells in the past have been kept shut in due to the lack of market outlet, which now is supplied by Humble's new 10-inch line.

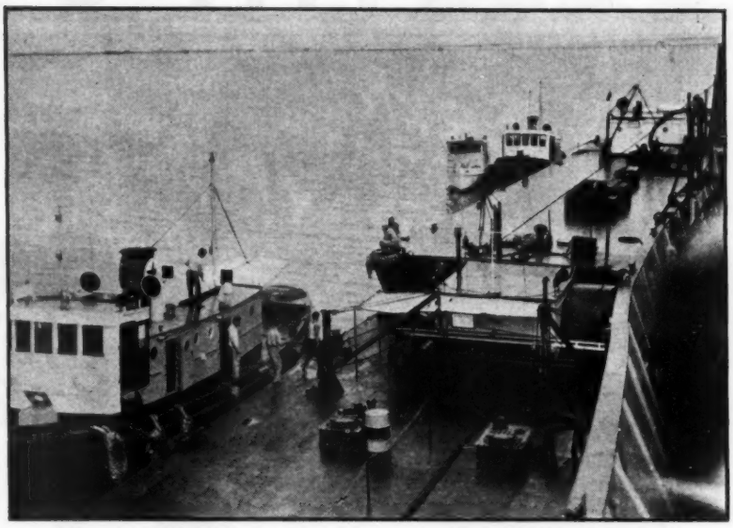
Capacity output of the plant, based on recoveries being obtained per 1,000 feet of gas processed,

is approximately 22,000 bbls. daily of unstabilized product. This production is taken by pipe line to the company's Baytown refinery. For this the company has a 4-inch line from the field, which ties in with the company's East Texas-Baytown 8-inch gasoline line at Satsuma.

Texas Co.'s new plant in the Lafitte field is of particular interest. The field is in an isolated marsh location, and construction of the plant involved a number of unusual problems. The plant is on a concrete floor set on piling. It is a combination high-pressure and low-pressure plant with dual operation, one absorber taking gas at a pressure of 500 pounds, and another absorber at 50 pounds. Residue gas from the high-pressure absorber is piped 24 miles through the marshes to Freeport Sulphur Co.'s mines at Lake Grand Ecaille. Residue from the low-pressure absorber is taken for field use. The rich oil from both absorbers is processed through a common still. Capacity of the plant is 15,000,000 feet of gas daily, from which approximately 15,000 gallons of gasoline can be recovered.

Southern Minerals Corp.'s plant at Saxet is one of the most modern and efficient installations, and embodies a number of innovations. It is of the absorption type and has a rated output capacity of from 13,000 to 15,000 gallons of gasoline daily. One of its features is that it takes gas under varying pressure conditions.

At LaBlanca, in Hidalgo County, extreme lower Gulf Coast district, Refugio Refining Co. placed in operation about two months ago a combination gasoline recovery plant and refinery. Through this the gas-distillate production of the wells is processed under high-pressure, from which a 53 per cent recovery of gasoline is obtained at 410° F. The plant has a throughput capacity of approximately 1,200 bbls. of this 53-gravity distillate daily. The company is controlled by the Clymore interests, which also operate a gasoline plant and small refinery in the Refugio field.



Loading oil barges, Caillou Island field, Coastal Louisiana

The fifth new plant is the Continental Oil Co. station at Gillis, Calcasieu Parish, Louisiana. This plant, also of the absorption type, has a daily output capacity of approximately 6,000 gallons daily. Continental has no production of its own in the field, but put in the plant and gathering system, taking gas from various independent operating companies in the field.

Humble's Dickinson plant (Galveston County), now under construction, will be of the well-pressure absorption type. The company is putting in an extensive gathering system to take gas not only from its own leases but also from those of various other operators in the field. The plant will operate at a pressure of around 40 pounds, and on the basis of a recovery of a half-gallon per m.c.f., it will have a capacity of around 15,000 gallons daily.

Preliminary construction work for Humble's Flour Bluff plant is just getting under way. It will be of similar type and operation to that of the Dickinson plant. It will have a capacity of approximately 20,000,000 feet of gas daily with a recovery of around 10,000 to 12,000 bbls. of gasoline. The Flour Bluff field is owned almost entirely by Humble, Barnsdall Oil Co. and Flour Bluff Corp. jointly.

According to the latest available report of the U. S. Bureau of Mines, the total daily production of natural gasoline in Texas was about 1,715,000 gallons per month. The largest quantity came from the plants in East Texas which turned out about 594,000 gallons daily. The Panhandle district was next with a daily output of about 577,130 gallons. The smallest volume of natural gasoline was made in North Texas district which produced only 69,320 gallons daily and according to the bureau's figures the Gulf Coast district manufactured about 85,260 gallons daily.

West Central Texas district is credited with having manufactured about 192,130 gallons each day during July and the rest of the state outside of the districts enumerated above produced about 197,100 gallons daily.

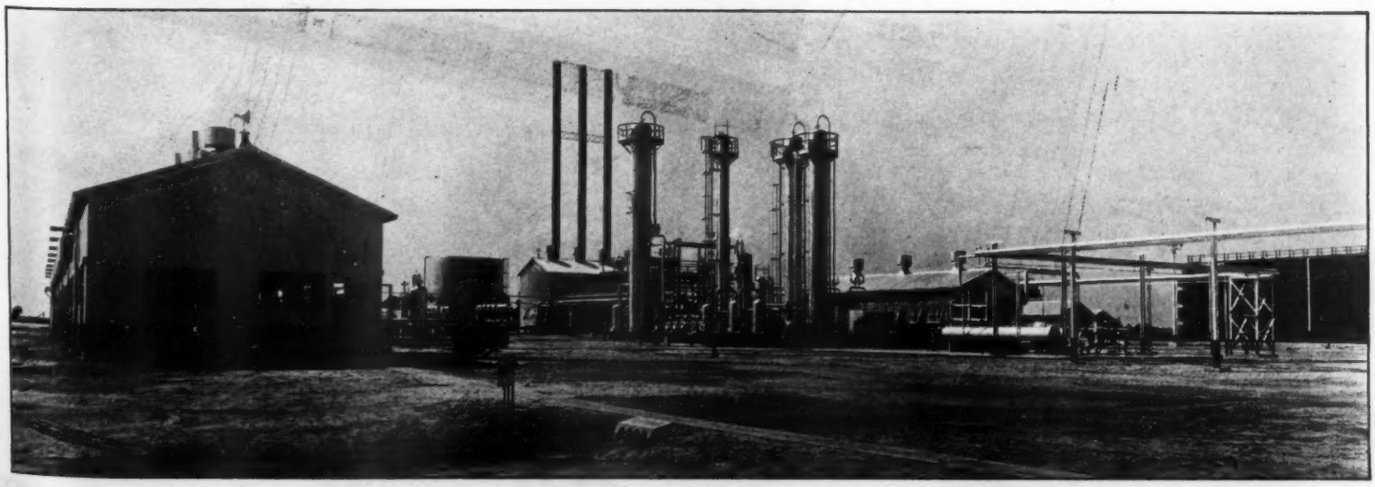
The state of Texas is credited with having produced in July about 30.6 per cent of all the natural gasoline manufactured in the United States, and the Gulf Coast plants make about 5 per cent of the total natural gasoline produced in the state of Texas. With the new plants in full operation and turning out the total estimated volume of 315,000 gallons daily the Gulf Coast will play a very important part.

This increase in natural gasoline plant capacity along the Gulf Coast seems justified as there is an increasing quantity of natural gasoline moving from that area to foreign countries either as stabilized product or as a blend.

GULF COAST NATURAL GASOLINE PLANTS

Company—	Field	County or Parish	Year built	Capacity	Type
Clymore Oil, Inc.	Refugio	Refugio (T)	1933	30,000	Absp.
Continental Oil Co.	Tepetate	Acadia (L)	1936	15,000	Absp.
Continental Oil Co.	Gillis	Calcasieu (L)	1937	6,000	Absp.
Danciger Oil & Refining, Inc.	Pledger	Brazoria (T)	1934	40,000	Absp.
Humble Oil & Refining Co.	Conroe	Montgomery (T)	1934	14,000	Absp.
Humble Oil & Refining Co.	Dickinson	Galveston (T)	(†)	15,000	Absp.
Humble Oil & Refining Co.	Flour Bluff	Nueces (T)	(†)	12,000	Absp.
Humble Oil & Refining Co.	Raccoon Bend	Austin (T)	1930	10,000	Absp.
Humble Oil & Refining Co.	Tomball	Harris (T)	1937	22,000	Absp.
Manhattan Gasoline Corp.	Plymouth	San Patricio	1936	12,000	Absp.
Midland Gasoline Corp.	Conroe	Montgomery (T)	1933	15,000	Absp.
Refugio Refining, Inc.*	LaBlanca	Hidalgo (T)	1937	.....	.....
Shell Petroleum Corp.	Iowa	Calcasieu (L)	1934	15,000	Absp.
Southern Minerals Corp.	Saxet	Nueces (T)	1937	13,000	Absp.
Texas Co.	Lafitte	Jefferson (L)	1937	15,000	Absp.
United Gas Co.	Agua Dulce	Nueces (T)	1934	45,000	Absp.
United Gas Co.	Refugio	Refugio (T)	1931	40,000	Absp.

*Combination gasoline plant-refinery. †Under construction. (T) Texas. (L) Louisiana.



Natural gasoline plant of Humble Oil & Refining Co. near Tomball, Tex.

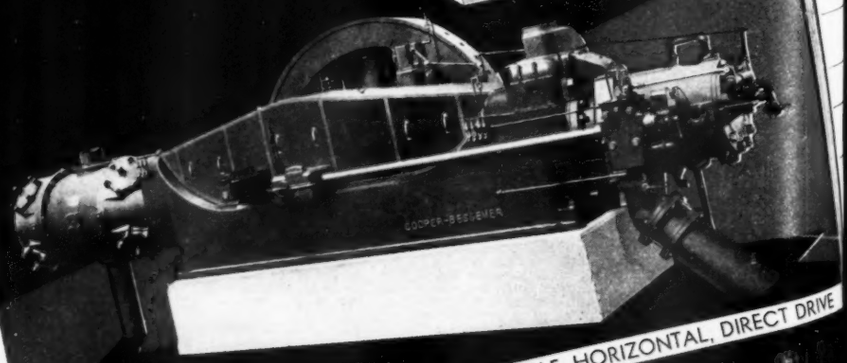
A NEW BULLETIN ON THE

Send FOR IT TODAY!

THE COOPER-BESSEMER

TYPE 12

GAS ENGINE DRIVEN COMPRESSOR



SINGLE AND TWIN-CYLINDER SIZES - TWO CYCLE, HORIZONTAL, DIRECT DRIVE

Accessibility Of The TYPE-

Governor runs in bath of lubricating

The oil guard can be lifted off as a whole, making the reciprocating parts readily accessible for repair or adjustment.

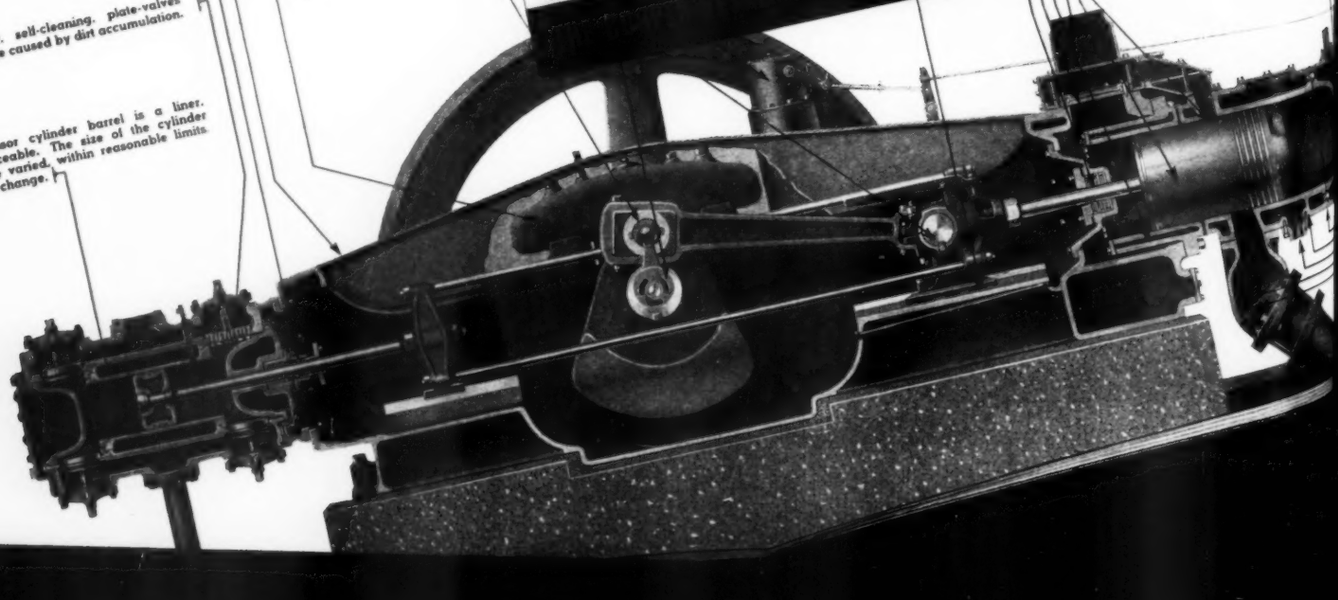
The single-cylinder engine can be sh
main bearing, the crank-pin beari
crosshead-pin bearing taken up; and
started again, all in 15 minutes.

The compressor cylinder stuffing-box can be adjusted, while the engine is running, through the oil guard door.

The self-aligning drag-crank drive
shaft, fuel economizer, lubricator and

Cooper-Bessemer, self-cleaning, plate-valves prevent breakage caused by dirt accumulation.

The compressor cylinder barrel is a liner, easily replaceable. The size of the cylinder bore can be varied, within reasonable limits, if pressures change.



GREATEST ADVANCEMENT IN 2-CYCLE HISTORY...

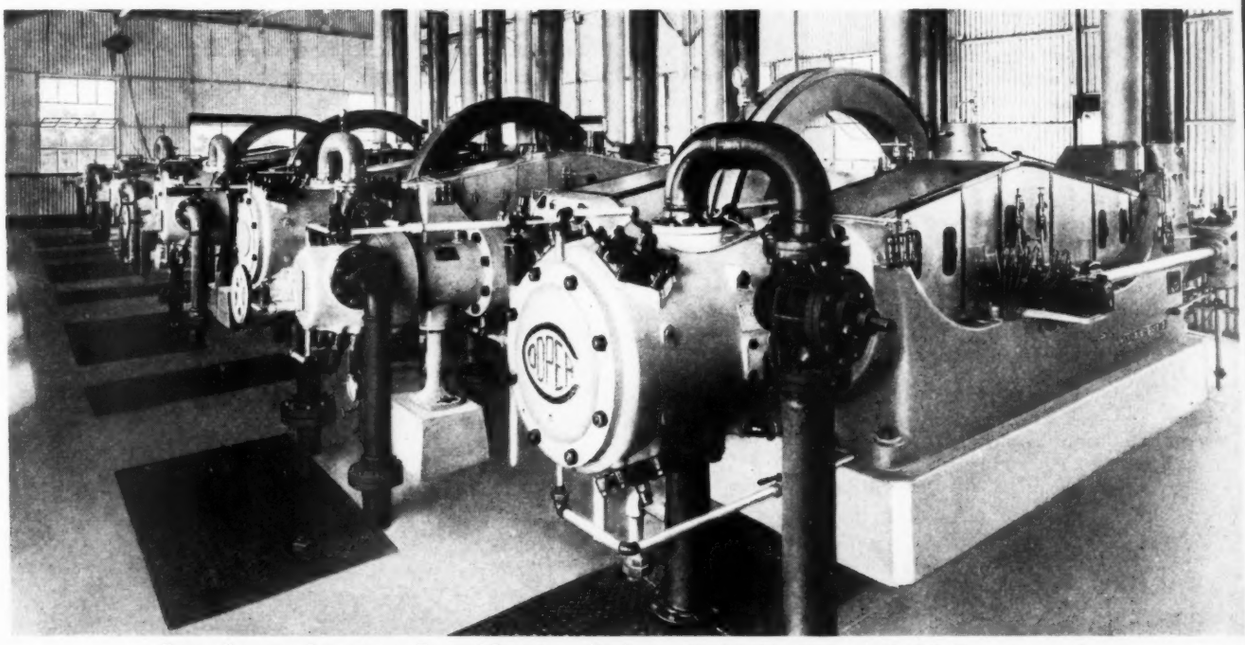
The BULLETIN

A busy engineer made these notes on it while leafing through this 20-page bulletin:

"Important — hold on top of desk. Describes effective scavenging, instant regulation, accurate fuel adjustment, complete accessibility, lifetime cylinder heads, easy scale removal, positive cooling, positive lubrication, separate magnetos, invertible exhaust, adjustable bearings, new compressor plate valve."

The COMPRESSOR

Built in two sizes — single-cylinder rated 125 H. P., and twin-cylinder rated 250 H. P. The Type 12 has greater accessibility than any previous two-cycle engine. All bearings on a twin unit — crank-pin, crosshead, and mains — can be adjusted in less than 30 minutes. All wearing parts automatically and positively lubricated. New duplex scavenging air valve principle gives more uniform operation and greater overload capacities.



Four Cooper-Bessemer Type-12 twin-cylinder units in the Barnsdall Oil Company plant, at Oklahoma City, Oklahoma.

THE COOPER-BESSEMER CORPORATION

Mt. Vernon, Ohio — PLANTS — Grove City, Pennsylvania

25 West 43rd Street, New York City
Mills Building, Washington, D. C.
640 East 61st Street, Los Angeles, Calif.
201 East 1st Street, Tulsa, Oklahoma
631 Spring Street, Shreveport, La.
Magnolia Building, Dallas, Texas
Esperson Building, Houston, Texas

Gulf Coast Shipping Carrying Greatest Flow of Petroleum

In the halls and hotels of Houston the oil show visitor is in for considerable discussion of the Gulf Coast. He must listen to tales of deep drilling and salt domes, of extensive refineries and vast pipe line systems. But he is almost certain, before he leaves, to be informed with much recounting and many statistics, of that young giant, Gulf Coast shipping.

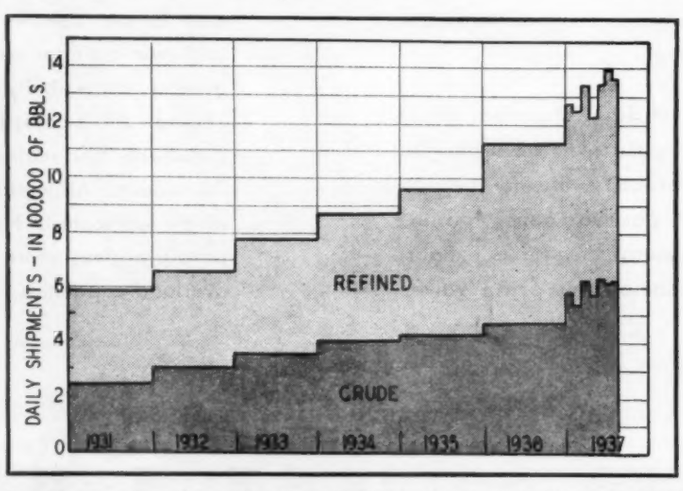
And well he might, for the coastal ports of Texas and Louisiana witness the greatest flow of crude oil and refined products in world commerce today. The past seven years have seen a 100 per cent gain in the traffic of those products, and at the present rate of increase, the total movement to Atlantic and foreign ports will probably exceed 500,000,000 bbls. for 1937.

Oil has played an important role in placing Gulf Coast cities in the upper brackets of American seaports. According to reports compiled by the United States engineers, the port of Houston ranked second only to New York City in total tonnage handled through coastal ports during 1936. In addition, Beaumont and Port Arthur gained fifth and sixth places respectively, and total tonnage handled out of 14 Texas ports during that year exceeded 78,000,000 tons. Of that total, representing import, export, coastwise and intercoastal canal movements, approximately 75 per cent of the tonnage consisted of crude and petroleum products.

The Gulf Coast enjoys a geographical position which guarantees its success as a manufacturing and shipping belt. To the interior is located the flush production of Texas, Louisiana, Oklahoma and New Mexico, and beyond the jetties of the several harbors lie open water and the markets of the world.

Water ballast from many seas is emptied into Gulf Coast waters, for in the eyes of the oil industry the traffic is a one-way proposition. Tankers ride high and empty up the channels to Gulf Coast oil terminals and leave half submerged with full displacement. But although the balance of trade is still ponderous, incoming flow of raw and manufactured materials is growing with markets of the area tributary to Gulf ports. Again the oil industry is a vital factor, supporting a rapidly developing population.

So far as the petroleum industry is concerned, Gulf Coast shipping centers in four principal districts; the Sabine area, Houston-Texas City, Corpus Christi and the Mississippi district, named in the order of their importance. Of the ports included in these divisions, Houston stands out as No. 1 with its 50-mile ship channel. The port of Houston industrial district is lined with oil terminals and refineries. A total of 11 terminals handle crude and refined products with facilities for servicing 20 tankers simultaneously. Within 20 miles of the city, by highway or boat, the visitor may see modern refineries, all types of dock and wharf facilities, extensive tank farms and a variety of craft, ranging from the largest of ocean-going tankers to the smallest of oil barges which ply the Intracoastal Canal.



Petroleum cargo shipments from Gulf Coast ports including inter-Gulf shipments. Note balance maintained between refined oils and crude

The major terminals along the inland channel include those of Humble Oil & Refining Co., Shell Petroleum Corp., Sinclair Refining Co. and Texas Co., all at ship-side refinery sites. Several of the major oil companies also maintain wharves along the channel where petroleum products are transferred to rail for shipment to interior markets.

Also represented in the oil shipping along the channel are Coastal Oil & Transport Co., Gulf Refining Co., Houston Lighting & Power Co., Crown Central Petroleum Corp., American Petroleum Co., Gulf Pipe Line Co. and General American Tank Storage and Terminal Co., the last named sharing dock facilities with Texas Co. In addition, bunkering lines serve vessels at all points in the district.

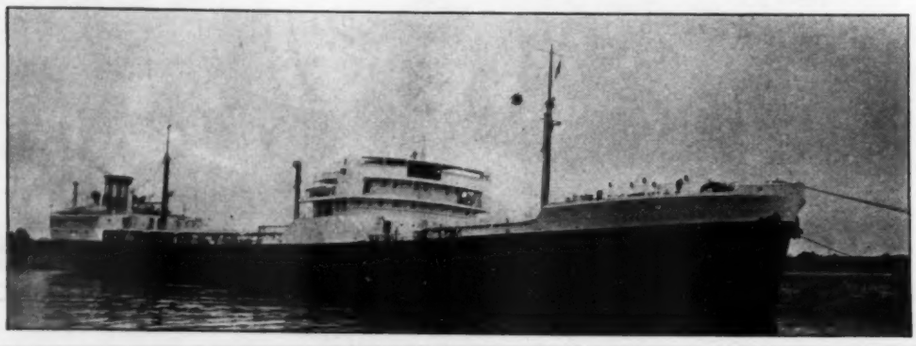
The Intracoastal Canal serves in increasing importance, by providing barge shipment between Houston and inland ports of the upper Gulf Coast and Mississippi River Basin. Besides offering access to the production of oil fields along its length, the canal provides economical shipping of oil field supplies into the Gulf Coast.

Texas City, southeast of Houston, on Galveston Bay, is taking a constantly growing part in the handling of petroleum and its products. Through its oil docks flow refined stocks from four refineries and crude from the tank farms of three additional majors. Pan American Refining Corp., Republic Oil & Refining Co., Southport Refining Co. and Stone Oil Co. ship finished products, and crude terminals are maintained by Atlantic Pipe Line Co., Continental Oil Co. and Humble Pipe Line Co.

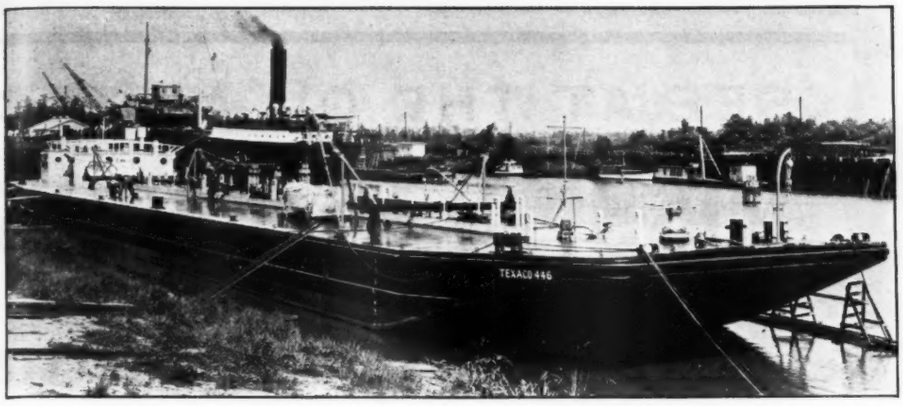
Newest of the group of three port authorities above Bolivar Roads, Texas City stands an easy second to Houston in oil movements.

Although no one port of the Sabine area exceeds Houston in oil shipments, the district as a whole leads in the volume of crude and refined products moved to coastal and foreign points. Embracing 90 miles of deep channel, navigable to ocean-going tankers, the Sabine district represents the greatest concentration of oil refineries in the world. From the oil docks of Sun Oil Co. at Sabine Pass in the very southeastern corner of the state, to those of Magnolia Petroleum Co. at Beaumont, the main channel serves 10 deep-water terminals. Gulf Oil Corp., Texas Co., Atlantic Refining Co., Pure Oil Co. and Magnolia Petroleum Co. move products of their six large ship-side refineries down the deepened Neches River and along the edge of Sabine Lake to open sea through Sabine Pass. In addition to the facilities of those companies, Stanolind Crude Purchasing Co., Sun Oil Co., Atlantic Pipe Line Co. and Warren Petroleum Co. operate shipping terminals along the Neches River and Sabine Lake.

Also included in the Sabine area is the port of Lake Charles, Louisiana. A continuation of the channel skirting Sabine Lake leads to the mouth of the Sabine River, up the river to Orange, thence due east to the Calcasieu River,



Tanker "Sheherazade," operated by the Cie-Generale Translantique (French), measures 570 feet in length, with a beam of 74 feet and a draft of 32 feet. The 150,000-bbl. vessel is the largest tanker to enter the ship channel



New 10,000-bbl. tanker drawing only 8 feet of water. Used on the Intracoastal Canal

and up that stream to Lake Charles. The channel measures 75 miles from the open Gulf at Sabine Pass to the wharves of Lake Charles and points of the immediate vicinity. Along that inland waterway are located terminals and docks of Shell Petroleum Corp., Union Sulphur Co., Continental Oil Co., Magnolia Petroleum Co. and W. T. Burton, all grouped in the vicinity of the Lake Charles turning basin.

CARGO TONNAGE HANDLED IN TEXAS PORTS
SHORT TONS—1936

Houston	23,800,415
Beaumont	18,071,751
Port Arthur	17,968,756
Texas City	5,664,767
Harbor Island	4,046,277
Galveston	3,614,626
Corpus Christi	2,824,621
Port Aransas	1,267,429
Sabine Pass	466,268
Ingleside	310,527
Port Isabel	278,616
Freeport	271,237
Orange	47,862
Brownsville	39,193
Total	78,672,345

Oil from the Lake Charles area consists of local crude, much of which finds its way by barge to the large refineries on Sabine Lake and the Neches River. An open channel which will give Lake Charles a more direct sea route is now projected. The proposed 45-mile waterway, which will include 15 miles of the present channel along the Calcasieu River, will bring Lake Charles much nearer the open Gulf, but will not appreciably affect oil movements in their present trend.

Mississippi Movements

Oil takes a relatively small part in the teeming traffic of the Lower Mississippi River. Although the barge movement of crude and refined products from the coastal refineries reaches many miles inland to markets of the Mississippi and tributary basins, large scale handling in coastwise and foreign tankers is restricted to few ports of call. Shell Petroleum Corp. operates a large plant at Norco, Louisiana, receiving crude from Texas terminals and shipping refined products to coastwise markets. Standard Oil Co. of Louisiana at Baton Rouge also accounts for much of the bulk oil shipments on the river, and the Pan American Petroleum Corp. plant at Destrahan employs water transportation for incoming crude and outgoing asphalt products.

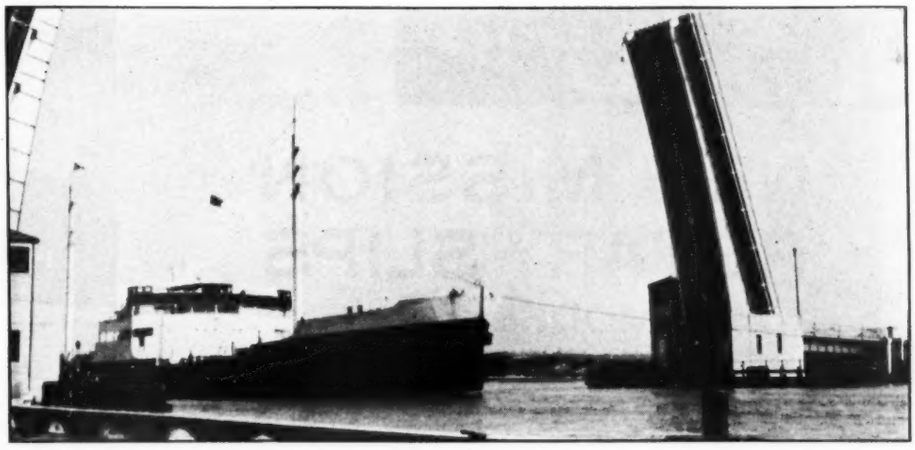
With the exception of these three large refineries, and two terminals maintained by Texas Co. at Amesville and Pilot Point, the Mississippi sees no mass oil movement such as flows to the Gulf through the three great Texas shipping centers.

Corpus Christi's Growth

Corpus Christi furnishes material for a success story. Despite its being the latest section to gain importance as an oil port, its shipments still very small in comparison with Houston and Sabine operations, the Corpus Christi area is showing phenomenal growth in all branches of the industry. Although only 11 years old, the port itself has developed into an important outlet for the production of Southwest and West Texas fields.

A total of seven small refineries operate in and around Corpus Christi, and construction is under way on two more. In addition, two other plants are projected, bringing the ultimate total to 11.

Few of the refineries maintain their own terminals. In the port of Corpus Christi, three public oil docks handle the products of most of the small plants, and one new dock is building for Barnsdall Refining Co. A number of crude oil terminals are located about the turning basin and ship channel. The more important ones are operated by Texas Pipe Line Co., Crude Oil Terminal Co., Southern Pipe Line Corp., Republic Pipe Line Co. and Corpus Christi Refining Co.



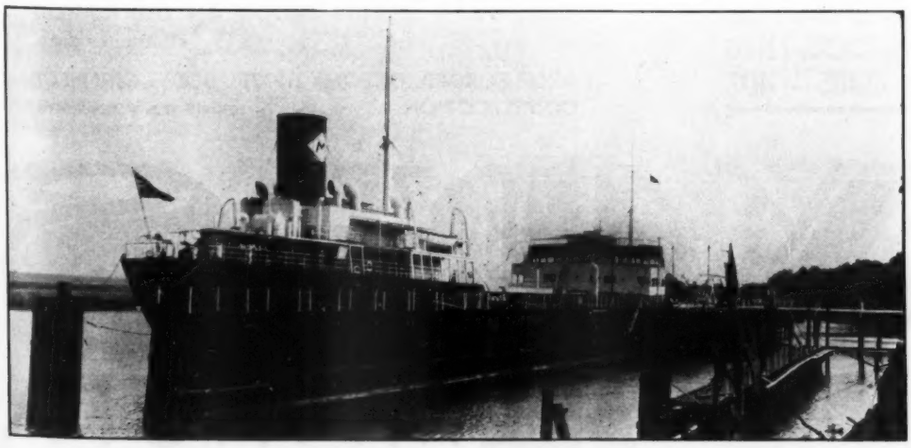
Norwegian tanker "Mosvold," loaded in the Sabine area, goes to sea through the double bascule bridge at Port Arthur

Included in the Nueces Navigation District with Corpus Christi are the Harbor Island, Port Aransas and Ingleside docks. The latter port serves tankers from the local Humble Oil & Refining Co. refinery and crude tank farm. Harbor Island claims distinction as the largest crude shipping port in the world. Over its modern docks, the greatest of ocean-going tankers are speedily loaded, lifting well in excess of 3,000,000 bbls. of crude per month from terminal storage of Humble Pipe Line Co. and Atlantic Pipe Line Co.

Plans are under consideration for a widespread expansion program in the shipping facilities of Corpus Christi. Oil development in the past two years has resulted in the utilization of nearly all available frontage on the turning basin and auxiliary channel to Avery Point, and extension of the channel is necessary to meet the demands of industries centering in the Corpus Christi district.

Although a mere trickle of the oil flow which goes to the Gulf through Texas and Louisiana ports, passes down the Lower Rio Grande Valley, that area is not without its prospects. The sole oil pipe line to deep water in that southernmost section of Texas terminates at Port Isabel. There the pro-

(Continued on Page 140)

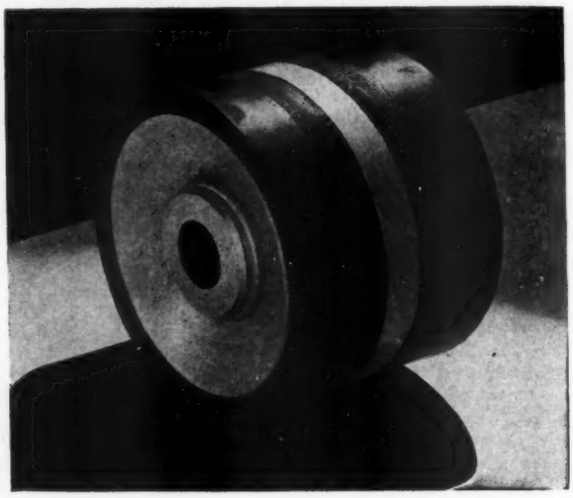


German shipping represented by the tanker "Mosli" shown lifting crude from the Union Sulphur Co. docks at Lockport, Louisiana

SEE AT THE OIL-WORLD

MISSION PRODUCTS

Economy Records



NEW MISSION ROTARY SLIPS

MODEL 36

The Unique Mission principle of ROLLING DOGS POSITIVELY ELIMINATES DANGER OF SLIPS CUTTING OR CRUSHING PIPE . . . Insures against many costly fishing jobs.

. . . Saves pipe . . . Saves money.

BODY OF MISSION SLIPS PRACTICALLY INDESTRUCTIBLE . . . Assures buyers practically a permanent investment.

DOGS QUICKLY AND EASILY REPLACED ON DERRICK FLOOR . . . Saves costly delays in taking slips to shop.

SEE MISSION RECORD-MAKING PRODUCTS . . AT THE OIL-WORLD EXPOSITION . . HOUSTON, OCT. 11-16
BOOTHS: 304 - 306 - 405 - 407

IMPROVED MISSION SLUSH PUMP PISTONS

CUT UPKEEP COSTS IN HALF

REPLACEABLE RUBBERS ON A LONG LASTING BODY . . . SAVE MONEY formerly invested in continuously buying new pistons.

PRINCIPLE OF MORE-RUBBER AND LESS-METAL gives greatly increased wiping surface, eliminating bypassing . . . INCREASES LIFE of liners and pistons.

LIGHTEST WEIGHT PISTON ON THE MARKET . . . . . eliminates drag.

DROP FORGED, CHROME NICKEL BODY: ONE-PIECE CONSTRUCTION . . . . . resists any pressure.

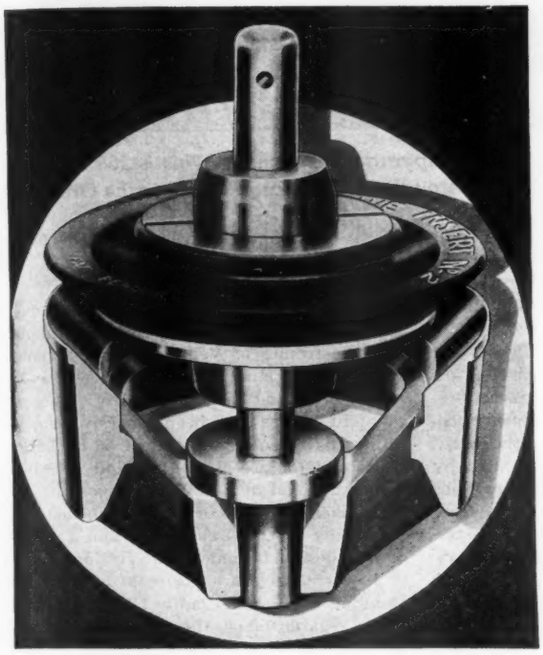
MIS
MANUFA

HUMBLE ROAD

EXPOSITION, HOUSTON

THAT ARE MAKING

the World Over



New Mission Silver Top Valves

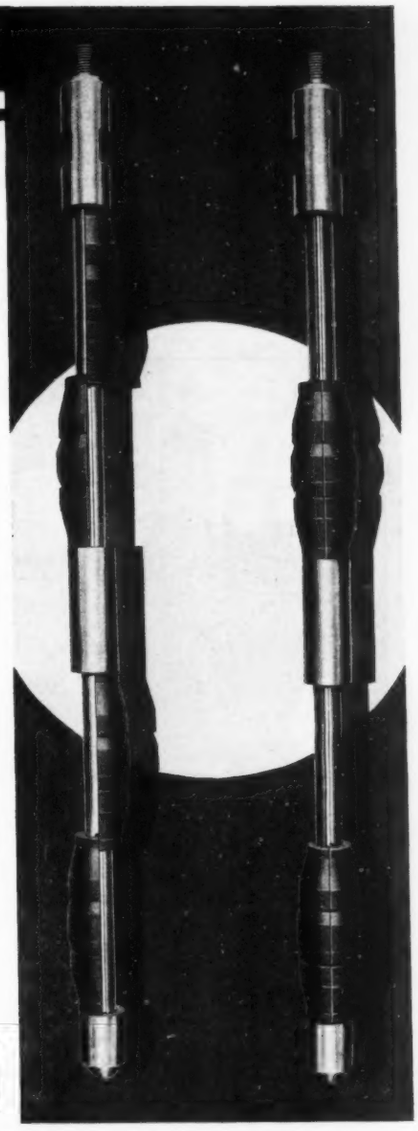
LAST 100% LONGER

SAVES MONEY formerly invested in buying new seats for conventional type valves.

SAVES LABOR continuously required for changing seats because of the TIME-PROVEN MISSION PRINCIPLE OF LONG-LASTING SEAT . . . WITH REPLACEABLE BUSHINGS that take the terrific blows that so quickly destroy the seats in conventional type valves.

BUSHING HELD FIRMLY IN PLACE . . . eliminating wear on valve seat under bushing and on bottom of bushing.

BUSHING EASILY CHANGED . . . by using attachment on Mission Seat Puller.



NEW MISSION VALVELESS SWABS

— TANDEM MODEL —

Fastest Falling Swab in the World

SWABBING 3 TO 15 TIMES FASTER

» » protecting the sand

» » earning quicker profits by getting oil into the tanks quicker

WOULD INTEREST YOU, WOULDN'T IT?

SPLIT RUBBER PRINCIPLE

On Down-Stroke, half of each rubber rises above stationary half allowing an area for fluid passage larger than the area of flow around the A.P.I. pin. On Up-Stroke, movable half of each rubber drops back beside its other half.

SAFER: Gas pressure will open split rubber, permitting gas to by-pass, resuming its load without loss after gas has passed. No loose line over derrick floor to endanger crew.

NUMEROUS RECORDS IN EVERY OIL COUNTRY INVARIABLY SHOW 3 TO 15 TIMES FASTER SWABBING WITH MISSION VALVELESS SWABS.

SION

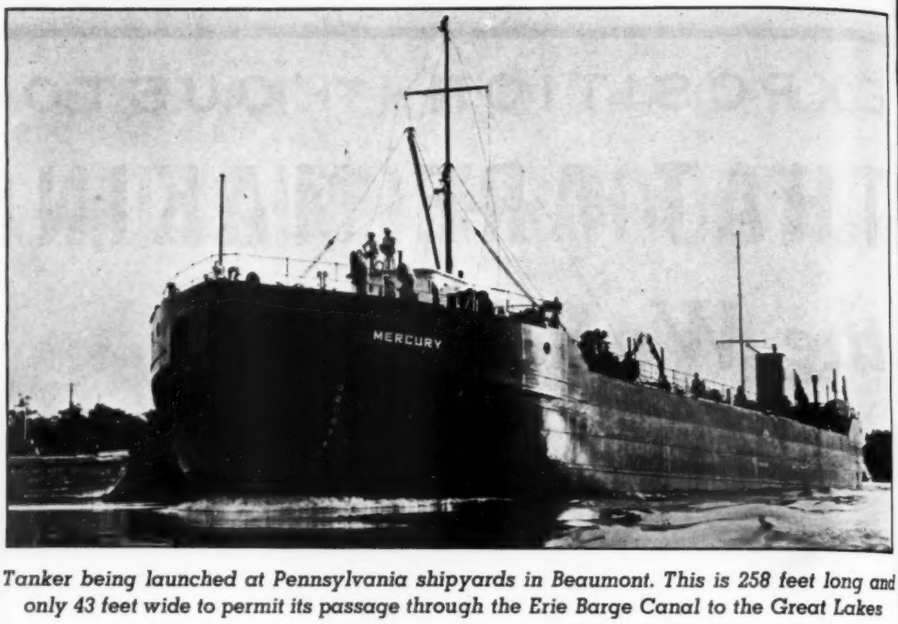
CTURING CO.

HOUSTON, TEXAS

duction of Samfordyce, Ricaby and other inland fields is charged to a modern refinery, and the products, comprising mainly furnace oils and fuel oil, are lifted by coastwise tankers for markets along the Atlantic Seaboard. Both Port Isabel and Brownsville, with newly developed ports will attract pipe line terminals and refineries should any further production of importance be developed in the area tributary to the South Texas ports.

Admittedly, the Gulf Coast shouts loudest when shipments are discussed, for there is little to say regarding imports or incoming trade. In the handling of crude and oil products the movement is entirely one-sided, with the exception of considerable inter-Gulf port movements of crude to centralized refineries. But equipment, pipe and other fabricated material for the oil industry is moving into the Gulf Coast in increasing volume, both by freighters from the Atlantic Coast and barges from the Pittsburgh area, plying the Mississippi River system and Intracoastal Canal.

The Spanish Loyalist tanker "Campoamor" loaded gasoline and lubricating oil at Houston this spring, and cleared for its home port of Bilbao with great secrecy



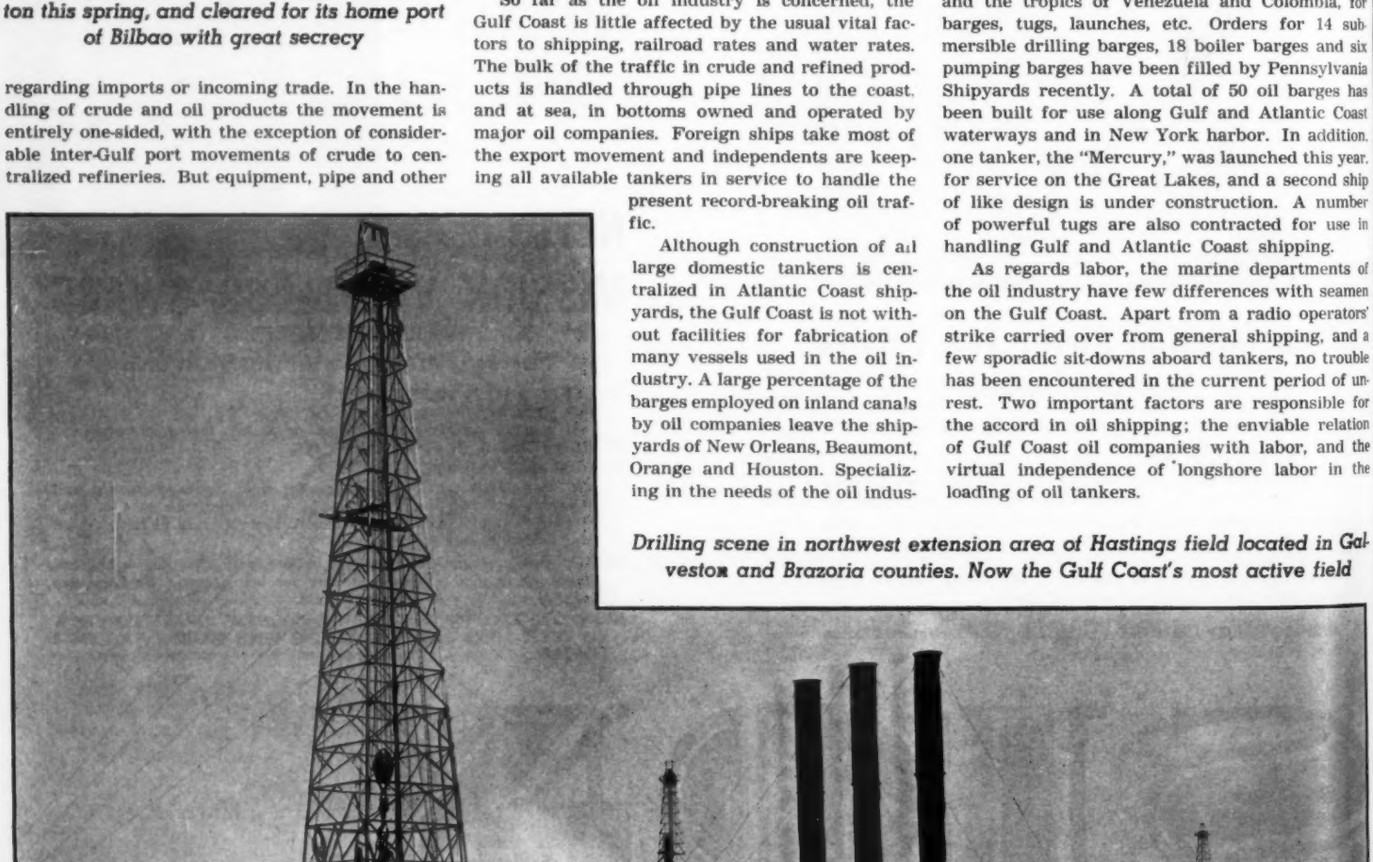
Tanker being launched at Pennsylvania shipyards in Beaumont. This is 258 feet long and only 43 feet wide to permit its passage through the Erie Barge Canal to the Great Lakes

So far as the oil industry is concerned, the Gulf Coast is little affected by the usual vital factors to shipping, railroad rates and water rates. The bulk of the traffic in crude and refined products is handled through pipe lines to the coast, and at sea, in bottoms owned and operated by major oil companies. Foreign ships take most of the export movement and independents are keeping all available tankers in service to handle the present record-breaking oil traffic.

Although construction of all large domestic tankers is centralized in Atlantic Coast shipyards, the Gulf Coast is not without facilities for fabrication of many vessels used in the oil industry. A large percentage of the barges employed on inland canals by oil companies leave the shipyards of New Orleans, Beaumont, Orange and Houston. Specializing in the needs of the oil industry, Pennsylvania Shipyards, Inc., of Beaumont, fabricates everything from submersible drilling barges to medium sized tankers.

A ready market is found among the concerns operating along the swampy coastline of Louisiana, and the tropics of Venezuela and Colombia, for barges, tugs, launches, etc. Orders for 14 submersible drilling barges, 18 boiler barges and six pumping barges have been filled by Pennsylvania Shipyards recently. A total of 50 oil barges has been built for use along Gulf and Atlantic Coast waterways and in New York harbor. In addition, one tanker, the "Mercury," was launched this year, for service on the Great Lakes, and a second ship of like design is under construction. A number of powerful tugs are also contracted for use in handling Gulf and Atlantic Coast shipping.

As regards labor, the marine departments of the oil industry have few differences with seamen on the Gulf Coast. Apart from a radio operators' strike carried over from general shipping, and a few sporadic sit-downs aboard tankers, no trouble has been encountered in the current period of unrest. Two important factors are responsible for the accord in oil shipping; the enviable relation of Gulf Coast oil companies with labor, and the virtual independence of longshore labor in the loading of oil tankers.



Drilling scene in northwest extension area of Hastings field located in Galveston and Brazoria counties. Now the Gulf Coast's most active field

Annual Convention of I.P.A.A. Feature of Exposition Week

One of the most important single events to be held in Houston during the Oil-World Exposition week, will be the eighth annual convention of the Independent Petroleum Association of America, October 14-16. With the exposition as an added drawing card, the convention is expected to bring more than 500 independent oil men, representing all the oil-producing states of the country, to Houston.

Chief among the attractions of this convention which will interest all visitors at the exposition will be an address by Harold F. Ickes, secretary of the department of the interior, at the annual oil mens banquet Friday evening, October 15. Mr. Ickes, who serves as a spokesman for the federal government in oil regulation matters, can always be counted on to express views of vital interest to the industry.

Ickes to Speak

To accommodate not only members of the association and their direct friends but also all other oil men in Houston for the exposition who wish to hear Mr. Ickes' message, the banquet will be held in the city auditorium, where a seating capacity of 2,500 can be provided. Joining with the association in sponsoring the banquet will be the Houston Wildcat Committee of the Mid-Continent Oil and Gas Association, composed of many of the leading oil and oil equipment men in Houston.

As is customary, the convention will be a "working" meeting. All the regular sessions will be devoted almost entirely to reports and discussions on the work of the various committees, and problems faced by the association and independent oil men generally. A comprehensive program of discussion has been mapped. Few special talks have been scheduled.

Permanent committees of the association will convene in Houston a day in advance of the convention opening. From these committee meetings will come detailed reports and views on all departments of oil production, oil taxation, oil demand, oil policies generally, and particularly oil's relation to the general public of the nation.

Of interest to the association members as well as the industry generally will be the reports to be made on the progress made in consummating the five-point program adopted at the last annual meeting in Oklahoma City. This program advocated the following:

1. The adoption by congress of legislation definitely limiting the importation of foreign petroleum and its products to a fixed ratio to the estimated demand for consumption in this country and for export from this country.

2. A continuing survey of the quantities and quality of crude oil in storage, with a view to ascertaining whether this is or is not at its economic level, with the purpose of avoiding either uneconomic additions to or uneconomic withdrawals from storage.

3. Some practical method whereby domestic production shall be held within the limits of national consumptive demand with each state, so far as this may be possible, assured of its equitable and proper share of the total national production.

4. The discontinuance of the costly practice of excessive drilling which adds to production costs, causes a decrease in the daily allowable per well, and rarely results in advantage to any, substituting for this practice provisions for the planned, orderly development of fields and pools by agreement.

5. Provision for voluntary agreements within the industry, subject to the approval of a proper federal agency.

The keynote of the convention will be sounded at the opening session Thursday morning, October 14, when Charles F. Roeser, Fort Worth, Tex., president of the association; Russell B. Brown, Washington, D. C., general counsel, and H. B. Fell, Tulsa, executive vice president, will discuss oil's problems from a national standpoint.

After a luncheon in the Rice ballroom, at which a nationally known speaker will discuss the relaiton of government and business plus the ever-changing ratio of taxation on industry, the convention will settle down to work on its committee reports and program of activities.

"Relation of oil imports to domestic production" will be the theme of the Friday afternoon session. This program will be led by Wirt Franklin, Ardmore, Okla. The subject of tariffs on imports has been of vital concern to the association ever since its organization in 1929.

The annual election of officers will be held on the morning of the final day. At that time any other business of the association also will be taken up. The convention will close Saturday noon so that members will be free to attend the Rice Institute-Tulsa University football game Saturday afternoon.

Entertainment Features

In addition to the annual banquet Friday night, the football game Saturday afternoon, special entertainment features will include a boat trip Thursday evening down the Houston Ship Channel to San Jacinto Battleground for a barbecue dinner.

Practically the entire staff of the association, headed by C. E. Buchner, executive secretary, from Tulsa, already is in Houston, where headquarters have been established in the Rice Hotel to complete final arrangements for the convention. Scores of reservations have been made by directors and members of the association and friends coming to sit in on the meetings. The convention is expected to set a record for attendance.

Officers of the Independent Petroleum Association of America

CHARLES F. ROESER
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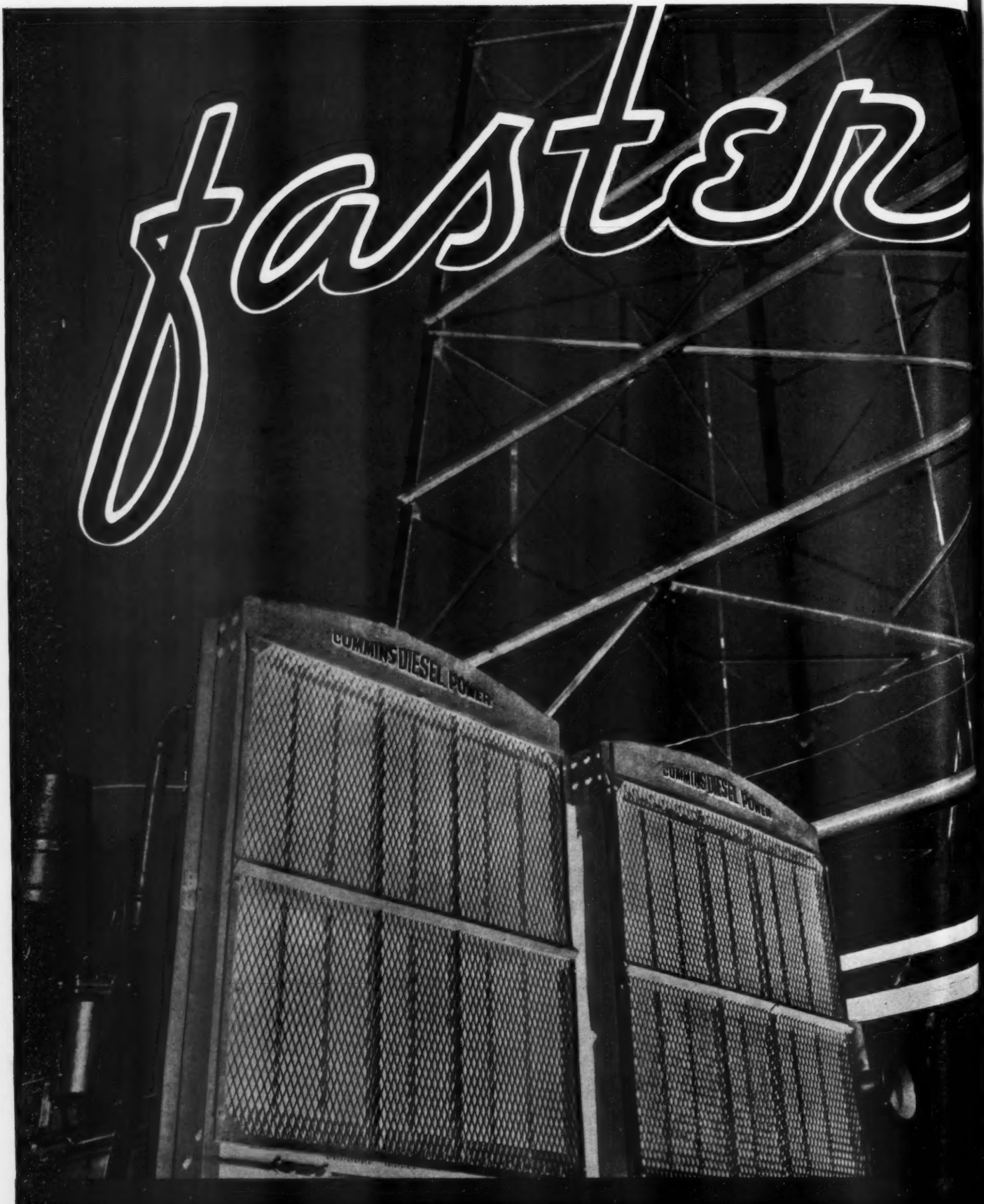

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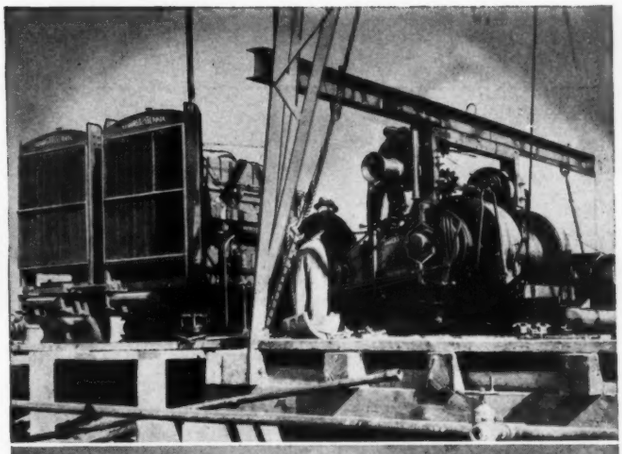

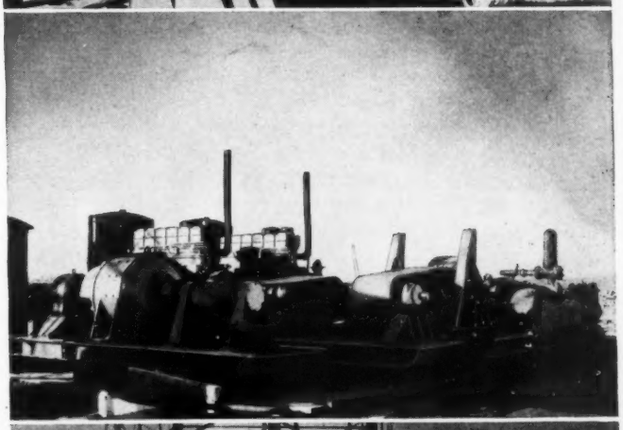

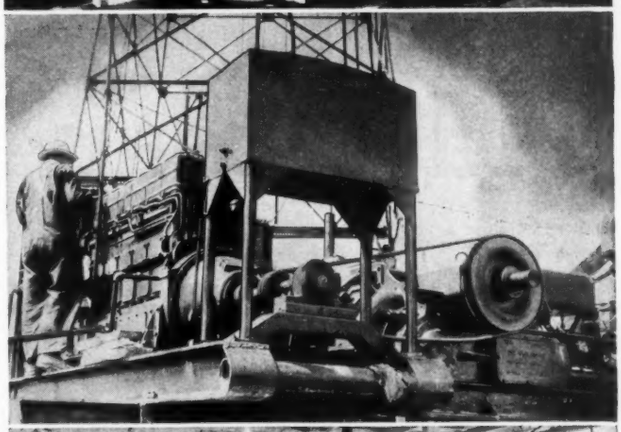

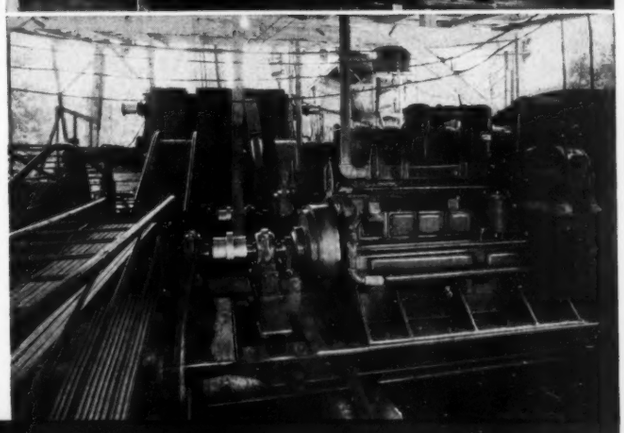

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Mid-Continent Territory

Christmas tree and flow line manifold completely assembled before bringing well in at Old Ocean. This is latest type of combination blow-out preventer-christmas tree assembly

Old Ocean Field Calls for High-Pressure Equipment

By NEIL WILLIAMS

Experience extending over a period of approximately two years in drilling and producing deep, extremely high-pressure wells in the Old Ocean field, Brazoria County, Texas, has instilled in the operating crews a serious respect for the pressures with which they are dealing, and has inspired a number of innovations which continue to contribute to constant and positive control at all stages of drilling and completion work. In producing the wells in this field, necessity has served again as the mother of invention and several novel methods have been evolved, with the aid of special equipment, which permit safe, flexible and economical handling of oil until it reaches the tank batteries.

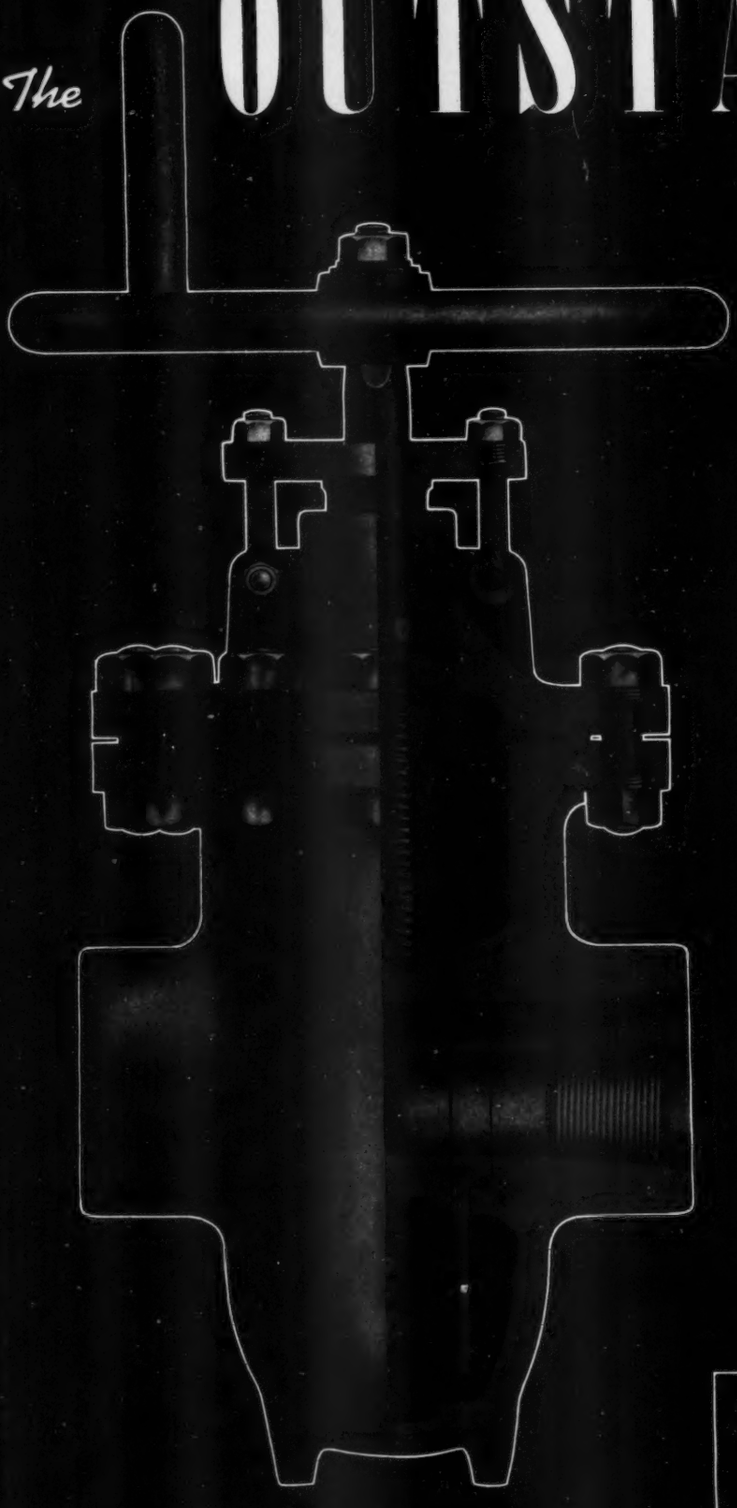
From the moment the oil string is started into the well through a special 10,000-pound test casinghead—designed so that the casing string can be suspended and sealed promptly at any point in the hole off bottom without the need of special nipples or short joint—until the oil leaves the battery of separators housed in a building maintained at uniform temperature, procedure has been worked out along lines which only experience could have dictated.

General view of separator house with heaters in front and tank battery in rear

Effectiveness of the procedure followed, precautions taken and equipment used in controlling the high pressures encountered in this field is reflected in the successful completion of six consecutive wells, all of which are on production with long, efficient flowing lives indicated. The significance of this can be appreciated when it is known that the flowing pressures of these wells at the surface range up to nearly 4,000 pounds, and that the shut-in pressures run from 4,150 to 4,200 pounds.

These pressures are indicative of the depth of the producing horizons in the field. All wells, except one, are at depths of 10,000 feet and below, one being drilled to 10,762 feet. The first two wells drilled were completed in an 8,600-foot sand, but with the proving up of the deeper horizon, one of these wells, the

The OUTSTANDING



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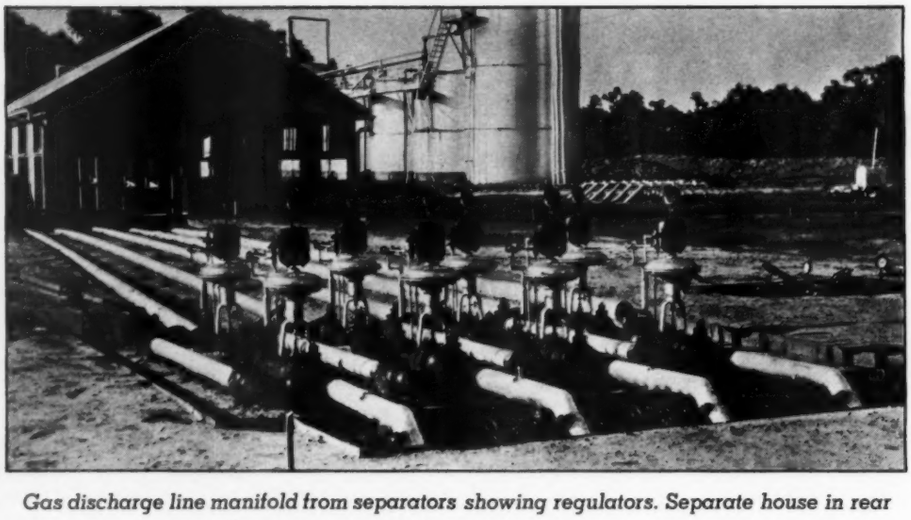
discovery well, has been deepened.

In anticipation of a field of extensive proportions and high recovery, Harrison & Abercrombie, the sole operators, have mapped out and are preparing for a long, systematic and conservative development and production program. The keynote of the entire set-up, however, is the provision being made to safeguard the drilling and producing of the field with adequate facilities and practices for constant control of pressures.



Gas discharge line manifold from separators showing regulators. Separate house in rear

Passing over the practices which are followed by these operators in controlling the pressures encountered while drilling the wells, this discussion will deal with the completion and production of high-pressure wells, from the time the long 7-inch oil string is landed in the special bradenhead and cemented. Needless to state, every care and precaution is taken to prevent a well from getting out of control and blowing out, and every facility that might expedite the safe drilling of a well is provided.

Completion and production of high-pressure wells is a phase of operation that is commanding increasing consideration on the part of Gulf Coast operators. To control high pressures while drilling is one thing that many operators have been fairly successful in doing, but to complete wells with high surface pressures safely, and to produce them so that recovery of fluid can be effected efficiently is quite another problem. Wells with such extremely high surface pressure are a comparatively recent development, and it has been only with late advancements in equipment and practices that operators have been able to handle such wells satisfactorily.

With the special equipment and practices adopted by Harrison & Abercrombie and which were initiated in the Old Ocean field, at no time in the completion procedure, as in drilling, is a well left without complete and positive control of pressures. The procedure followed in drilling in with a description of the equipment which is making possible positive control at all times during this operation follows:

When pressure is relieved from inside the oil string after cementing the string, the christmas tree is flanged directly thereto. Foundation of the tree consists of a 10,000-pound test, manually operated, blowout preventer, with casing flow lines located below the rams, and tubing flow lines located immediately above the rams, both flow-line connections being integral with the blowout preventer body and of flanged type. The manually operated blowout preventer is equipped with rams to close on 2⅞-inch O.D. tubing. Flanged above the blowout preventer or control head, as it is frequently called, is a 10,000-pound test 7-inch double flanged master gate. Flanged above the master valve is a 7-inch, 6,000-pound test pressure operated blowout preventer, equipped with rams to close on 3½-inch drill pipe.

Drilling of cement inside 7-inch casing, when this is necessary, is done with 3½-inch drill pipe. When cement is drilled out below the point at

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The PROTECTIVE EFFICIENCY of cold coating and the HILL-HUBBELL Process can be compared. Cold coating gives about as much protection as a prime coat on a new house. Compared to this the HILL-HUBBELL Process gives the protection equivalent to a prime coat and two coats of quality paint. There is just no comparison,—one actually PROTECTS and the other doesn't. To bear out our contention we quote the following from an A.G.A. Subcommittee report on Pipe Coating and Corrosion—"Their value (cold coatings) as a protection against pitting would probably not justify the trouble and expense of applying them to permanent lines." The PROPER protection of STEEL PIPE by the HILL-HUBBELL Process pays in dollars and cents.

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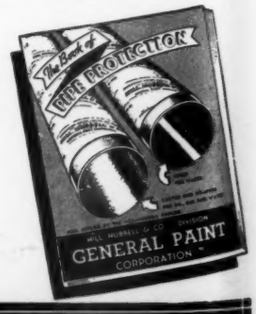

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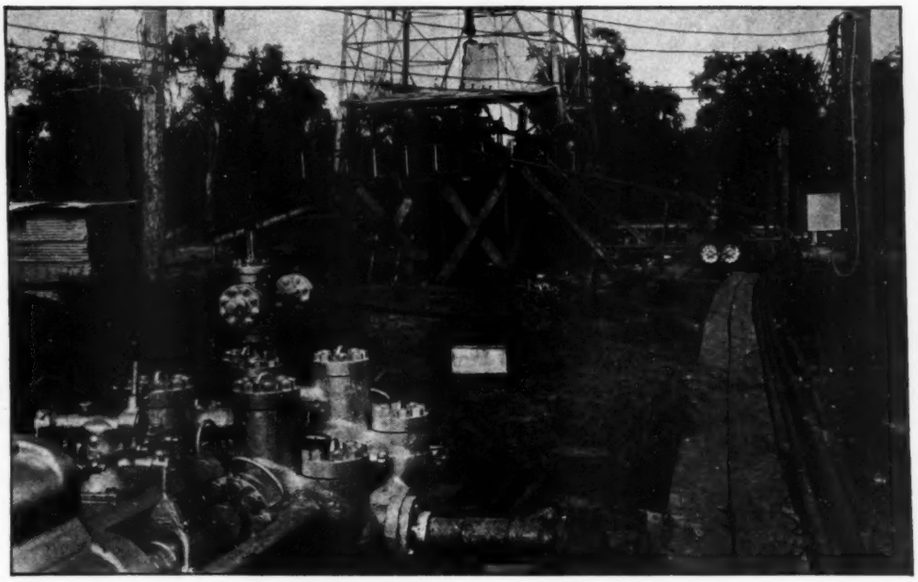
which it is desired to perforate the oil string, the drill pipe is pulled from the hole and the gun perforator run. Liner and screen are then run in on 3½-inch O.D. drill pipe and liner packer is set. Drill pipe then is removed from the hole, the upper pressure-operated blowout preventer providing positive blowout protection during this operation. Tubing string then is run, positive blowout protection being afforded by the 10,000-pound test manually operated preventer which serves as the foundation of the christmas tree as previously mentioned.

When run to the desired producing elevation, tubing is suspended and sealed on the closed rams of the manually operated blowout preventer. The master gate above the tubing then is closed and the pressure-operated blowout preventer above the master gate is removed. A 7 by 2-inch flanged adapter is then bolted to the top of the master valve. Above the 2-inch flange of the adapter is installed a 10,000-pound test flanged 2-inch gate valve with bull plug, needle valve and pressure gauge. The flow wings then are connected to a special flow manifold, to be described later, and then the well is ready to be washed in. It can be noted from this that no attempt is made to bring the well in before the permanent christmas tree assembly and flow-line connections are completely installed.



High-pressure, emergency mud pump hooked up for use

Flow Manifold

The special flow manifold through which each well is produced is designed to insure the following advantages:

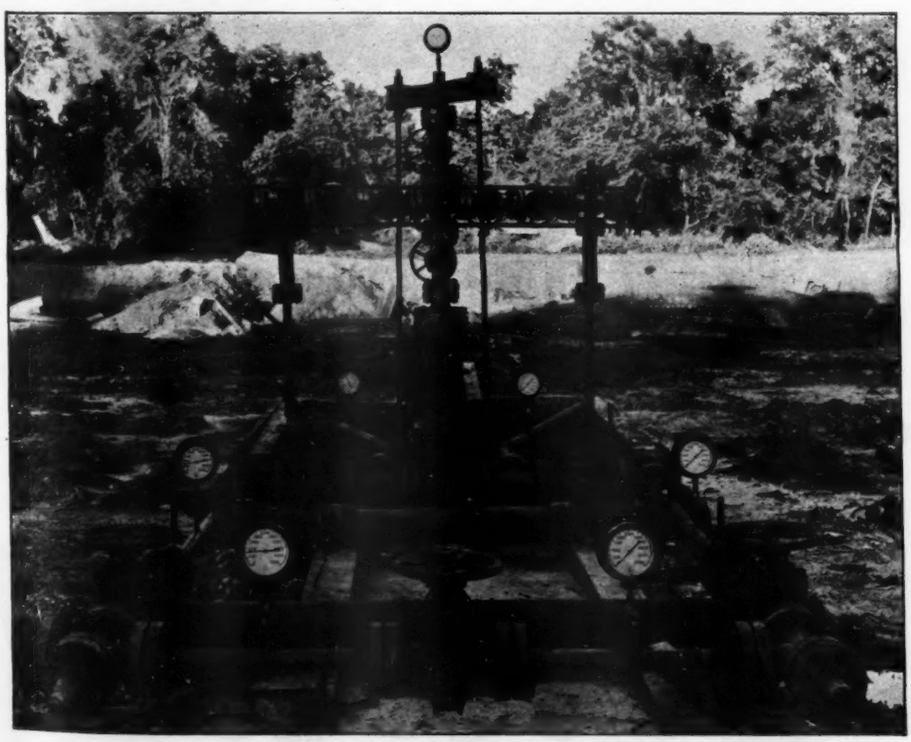
1. Gradual and controlled expansion of gas.
2. Total elimination of the tendency to freeze.
3. Reduction of wear on positive beans to a negligible amount.
4. Elimination of necessity to change chokes on the christmas tree under full tubing pressure.
5. Ability to change No. 2 and No. 3 chokes (to be described in following description of assembly) safely under substantially reduced pressures beyond the christmas tree.

The flow manifold, completely hooked up with the special christmas tree assembly, is clearly shown in accompanying pictures. It consists of an essembly of 6,000-pound test flanged gate valves, tees and special flanged expansion chokes. Well flow from each tubing flow wing of the christmas tree is directed through the respective sides of the manifold. Each side of the manifold incorporates three of the special expansion chokes. The first of these is placed at the extreme outer end of each tubing flow wing. The second is at the inner end of the flow manifold, and the third at the outer end of the flow manifold toward the discharge side to the separators.

Chokes Used

These special chokes incorporate both a positive choke bean on the upstream side and a long expansion tube on the downstream side. The first choke, at the christmas tree, has a positive bean of 24/64-inch I.D. At the downstream end of the positive bean, oil and gas is discharged into the small end of the first expansion tube, which expands from one-half inch I.D. at the inner end to 1⅝ inches I.D. at the outer end. The second special choke has a positive bean of 29/64-inch I.D. opening into an expansion tube graduated from three-quarters inch I.D. at its inner end to 1¾ inches I.D. at its outer end. The third choke has a positive bean of 31/64 inch I.D., discharging into an expansion tube measuring three-quarters inch I.D. at its inner end and 1¾ inches I.D. at its outer end.

In the hook-up the manifold is so arranged that the flow from either tubing wing can be directed through either side of the manifold to the separators. So efficient is the control of the gas expansion and reduction of pressure that pressures of wells are being reduced as much as 2,800 to 3,000 pounds readily through the three special chokes with no indication of freezing and with no heat needed. Indicative of the pressure drops being effected is the production record of No. 4 Bernard, one of the latest wells completed. This well has a flowing pressure of 3,650 pounds on the tubing. Through the first choke the pressure is reduced to 2,200 pounds. Through the second choke the pressure is dropped to around 800 pounds, and through the final choke it is reduced to the separator operating pressure. The pressure reductions can be governed by changing of chokes to different sizes than those listed.



Special flow line manifold hook-up for control of high-pressure wells

Heaters on Separators

Freezing at the separators is prevented by the installation of heaters just ahead of the separators. The heaters consist of steam jackets, through which the flow lines pass. Steam for injection into the jackets is generated by a power plant provided for this purpose. All separators for each lease, as well as the tank battery, power plant, and the heaters, are at a central location on the respective leases. As a precaution to insure more uniform and constant control of separator operation, the separator battery on each lease is housed in a permanent building, in which a minimum temperature of 60° F. is to be maintained. This temperature is to be kept as uniform as possible. The buildings are equipped with steam heaters for use on cold days. Sides of the building are of special open-type construction to provide ample ventilation, although

(Continued on Page 157)

There must

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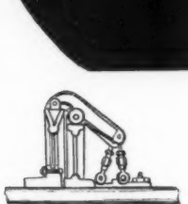

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Steam jacket heaters on flow lines to separators. Separators are in building in background

the building can be closed with glass windows if necessary. The steam generating plant on each lease also is enclosed in a permanent building.

The separator house shown in an accompanying picture, located on the Bernard lease, has provision for seven separators although so far only four wells have been completed on this lease.

The steam jacket heaters on the flow lines are on the outside of the building on the side. They rest horizontally on the ground in a parallel row. In addition to be well insulated to conserve steam, the heaters are covered for protection from the elements and to provide more uniform heat control. Lines from the heaters to the separators are insulated and buried.

Circulating Pump

Unique so far at Old Ocean is the special, high-pressure, emergency circulating pump which is kept available for use in any part of the field. It was designed by engineers of the Abercrombie Pump Co. and manufactured in the shops of Cameron Iron Works for Harrison & Abercrombie at Old Ocean. It has a test pressure of 10,000 pounds and is capable of circulating heavy muds at a pressure of 7,500 pounds, and is the only one of its kind in existence.

At present the pump is mounted on skids but plans call for mounting it permanently on a tractor trailer to facilitate quick transportation to any part of the field. Connections and lines are provided on all active drilling wells so that the pump can be tied in quickly to kill any high pressures encountered, if needed. Connections are so arranged that the pump can be operated independently of the regular two mud pumps on the well, or in series with either or both of them. The pressure which the pump is capable of building up is more than adequate to overbalance any pressures that might be expected in a well, and thus is good insurance against any blowout.

Pump Movable

The pump also is available to kill any of the flowing wells if necessary. In the event a high-pressure well cuts out a choke or fitting, or for any other reason must be killed, the pump can be moved in easily and quickly. Steam line for its operation can be laid from an active rig, or in the event an active rig is not conveniently accessible, operating pressure can be obtained by tieing into the nearest high-pressure gas line.

Another special pressure control unit which is being provided on all drilling wells at Old Ocean is a small christmas tree hook-up installed on the mud-discharge line. Its primary purpose is to provide positive control of a well while gas-cut mud is being replaced. As shown in an accompanying picture, this tree is on the mud-return line just ahead of a gate located at the end. When, in an emergency, the mud becomes so badly cut that the mud column should be replaced, the gate on the end of the return line and the blowout preventer is closed, and the gate to the christmas tree is opened, permitting the gas-cut mud to be discharged through either or both wings of the tree. Chokes installed in the wing maintain a back pressure on the fluid while fresh mud is being pumped into the hole. In the picture the lines from the wings are not in place but these can be connected quickly.

From the top of the tree to the standpipe is a line permitting return of the fluid from the standpipe. It also is possible to tie a line into a wing of the tree from the high-pressure mud pump so that fluid can be pumped either through the regular mud line or through the line from the top of the christmas tree.

Measurement and Control Program

Papers for presentation at the two-day conference on refinery measurement and control which will be held during the Oil-World Exposition at Houston, Tex., have now been prepared and all details of the conference completed. This conference, under the sponsorship of Rice Institute, the University of Texas and the A. & M. College of Texas, is under the direct supervision of a committee that is working in cooperation with the general refinery committee of the exposition. Due to the complete treatment of measurement and control subjects the meetings will take in two entire days, October 13 and 14.

The program consists of the following papers:

"Measurement and Control of Refinery Processes," by Phillip Darling, Pan American Refining Corp.

"Measurement of Flow," by A. F. Benson, American Meter Co.

"Measurement of Temperature by Thermometry," by A. J. Fleig, Taylor Instrument Companies.

"Potentiometer Pyrometry," by G. C. Graf, Leeds & Northrup Co.

"Development Trend in Pyrometry," by C. O. Fairchild, C. J. Tagliabue Manufacturing Co.

"Selection of Valves for Automatic Control," by R. A. Engel, Fisher Governor Co.

"Measurement of Pressures," by M. J. Smith, Crosby Steam Gauge & Valve Co.

"Regulation of Pressure," by Jaul A. Condit, Mason-Neilan Regulator Co.

"Control of Temperature," by H. M. Schmitt, Brown Instrument Co.

"Control of Flow," by J. B. McMahon, Foxboro Co.

Speakers on "Measurement of Control in Natural Gasoline Plant Processes" and on "Liquid Level Regulation" will be announced later.

Rocky Mountain Men to Meet

Both old-time and present Rocky Mountain oil men have planned a reunion at the Oil-World Exposition to be held in Houston from October 11 to 16, inclusive. This "get-together" of all who have ever worked in the Rocky Mountain territory will be at the Glenbrook Country Club on October 13 which has been designated by the exposition management as "Rocky Mountain Day." The afternoon will be devoted to the renewal of old friendships and the playing of golf by those wishing to do so.

Christmas tree on mud return line for replacement of gas-cut mud with well under positive control. This also permits making more effective changes in mud pressures in the hole

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The Gulf Coastal Plains of Texas, Louisiana, Mississippi, Alabama and Georgia have been given much consideration as a region in which gas and oil in commercial quantities may be found. The fields of Texas and Louisiana have been active for many years and have been fairly well developed. Recently discoveries of deeper formations containing gas and oil in Texas and Louisiana seem to indicate possibilities of discovering commercial oil production in Mississippi, Alabama and perhaps Georgia.

The sediments of the Gulf Coast area were laid in horizontal beds and these beds were later tilted due to the downwarping of the earth's crust when overloading occurred. It is possible that as the sediments sunk on the shoreward side some uplifting may have occurred inland, or it may have been there were areas of nonmovement and the sediments accommodated themselves to those conditions and the rate of dip was increased. Whatever may have been the cause it is known there are many salt domes along the coast and in some instances they have penetrated the upper and younger formations and sometimes have carried portions of older sediments up to positions near the surface.

The significance of these geologic movements concerns the oil operator in that the inclination of the formations have direct effect upon drilling holes for gas and oil. Most of these wells are drilled with rotary outfits and during recent years they have been carried to depths of nearly 12,000 feet in several fields and with the greater depths the problems have become increasingly more involved.

One of the major drilling problems of the Gulf Coast region is penetrating the so-called "heaving shale." This unconsolidated material will run into the drilled hole and stick the drill pipe and cause expensive fishing jobs and in many instances ruin the hole. There has been much written about heaving shales and suggestions offered for the solution of this aggravating problem but as yet no generally accepted remedy has been found.

Low Bearing Values

It is known that the formations classified as heaving shale have low bearing values, that is, the material will not stand the pressure exerted by the hundreds and thousands of feet of upper sediments resting on it. As the beds lie horizontal or nearly so in their original attitude the bearing values are higher than when these same beds have been tilted. The tilting has followed movement in the strata either due to downwarping and bending of the sediments over salt domes that did not penetrate and move upward, or near salt domes that did move upward and dragged some of the sediments up with them.

Laboratory experiments and surveys of drilled holes with electric coring devices have proven that some of these beds are tilted upward very steeply and it is also known that in the tilted position the bearing strength of the sediments known as heaving shales is very low.

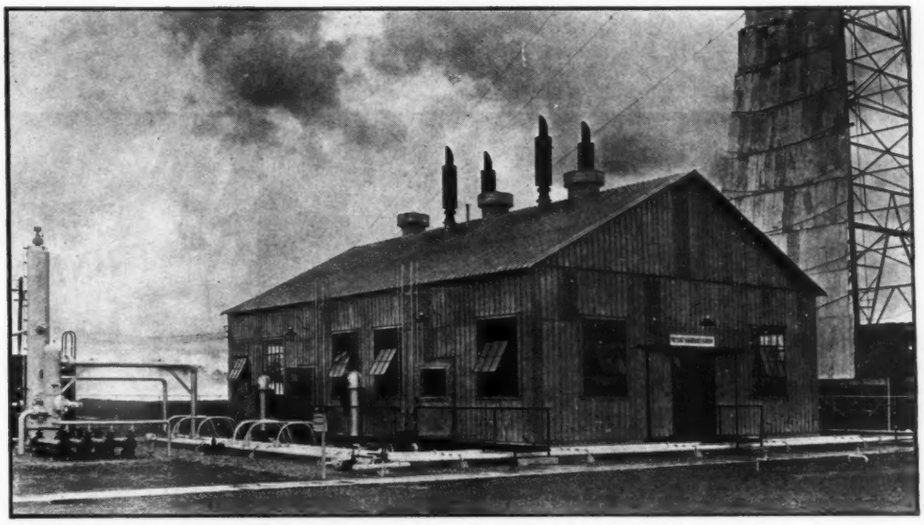
It has therefore been concluded that due to the great weight of the overburden upon these uptiled sediments they have become more or less plastic and when penetrated by the drill and water is added they actually flow into the drilled hole and cause trouble. As soon as this condition was determined the operators and drilling contractors started to find some means of preventing drilling mud from giving up its water to these soft sediments. There have been several methods recommended but recently one major company operating on the Gulf Coast has tried a mud made of salt water clay secured in Florida and zinc chloride.

This mixture makes a heavy mud and it can be mixed to weigh as much as 16 pounds per gallon but as this weight mud is not suitable for drilling operations because it will stick the pipe and cause

Interior view of high-pressure compressor plant for recharging deep sands on Gulf Coast property

to Add to Crude Oil

By L. G. E. BIGNELL



Gulf Coast lease showing compressor building and derrick over deep well

other difficulties it has been common practice to reduce the mud weight to about 12 pounds per gallon. In recent drilling practice the pressure exerted at the bottom of the hole to control the movement of the heaving shale has been secured by using a controlled pressure system by means of which the additional pressure to equal formation pressure is built up through pump pressure. This has been found satisfactory for the zinc chloride and salt water mud will not dicharge its water into the shale but will carry cuttings to the surface and discharge them in a satisfactory manner. Following this practice it is now possible to penetrate sections of heaving shale and set pipe and then continue on to lower producing formations.

Centrifuge Cuttings

To clean the mud of its load of cuttings it is first screened and the undersize from the screens then passed through centrifugal machines which remove the balance of the cuttings. This method of handling is possible because it has been found that the shale is not disintegrated in the mud made from salt water clay and zinc chloride as it has been where fresh water made mud has been used. The particles formed by cutting away the formation with the bit are covered with a protective film which prevents water from entering the tiny pore spaces in the shale and in this way the broken pieces, called "cuttings," are transported to the surface intact and there removed from the mud fluid as described above.

Another problem encountered in Gulf Coast wells is the production of the so-called "distillate." As the Gulf Coast shore line is approached it has been noted the gravity of the oil increases. Near the outcrop the oil will be quite heavy and thick but at greater depths the oil becomes thinner until finally the wells do not produce crude oil but a natural gas out of which is precipitated a very light distillate by passing the gas through oil and gas separators and lowering the pressure.

This condition is not common to the Gulf Coast alone for many fields produce natural gas that precipitates a light oil. Recent investigations on the Gulf Coast have developed some rather interesting facts concerning these distillate wells and it is now believed by some engineers and chemists that as pressure in the formation is reduced a distillate will be formed there which will be difficult to recover at a later date.

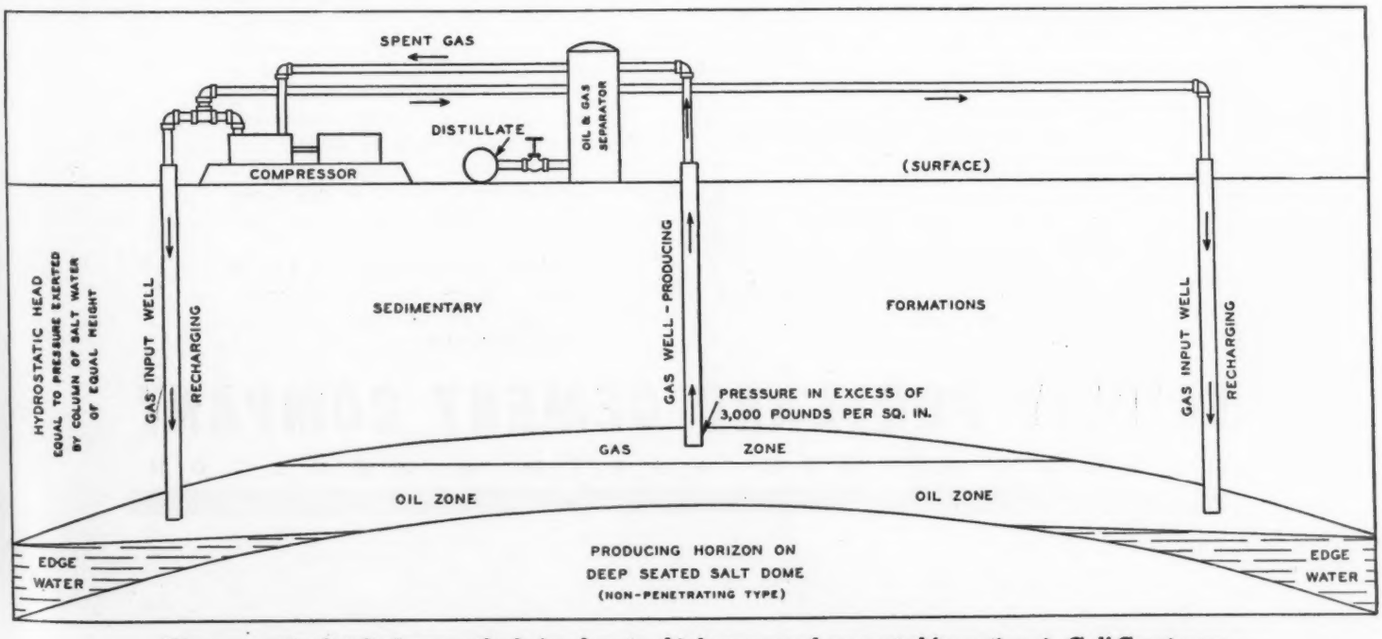
It has been found that it is not necessary to reduce the temperature of the gas very much to cause the distillate to precipitate if the pressure is reduced. As the formation pressure in many of the Gulf Coast fields is equivalent to the weight of a column of salt water equal to the depths of the formation below the surface many wells will register pressures in excess of 3,000 pounds at the bottom of the hole.

If this high pressure is released the gas will give up its fluid contents and this light oil is caught in the oil and gas separators. The question now arises as to what is happening in the formation where the pressures are being gradually lowered as the gas is withdrawn. If lowering of pressure alone will cause the formation of precipitates at the surface it is reasoned that lowering of formation pressures will also cause distillate to form there and the question then arises as to how this valuable oil can be later recovered.

Observe Formation Pressure

One investigator suggests the necessity of recharging these high-pressure formations with gas before the light fractions have been precipitated in the reservoir. This means repressuring with gas to at least formation pressure and forcing the gas into the producing strata and in this manner maintaining original formation pressure. This is practical for deep-seated reservoirs and in one instance sands encountered at 8,300 feet below the surface

(Continued on Page 174)



Diagrammatic sketch of one method of recharging high-pressure deep seated formations in Gulf Coast area

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New Fields of Eocene Age Found in Conroe Trend

The exploration for additional crude oil reserves in the Gulf Coast region has during the past several years been confined largely to the development of deep-seated structures along the salt dome area bordering the coast line, has now shifted inland to the northern tier of counties along the "Conroe trend." Interest in this area has been renewed through the discovery of five new fields during the past 16 months and the significant feature has been the opening of additional producing formations in the Claiborne group of formations. Recently two new fields were opened, one in northeastern Tyler County, Texas, and the other near Ville Platte, in Evangeline Parish, in Coastal Louisiana.

Large Area Affected

While there is no exact definition for the Conroe trend, the immense area affected by this new play extends along a northeastern line from the western part of Lavaca County, Texas, through Fayette, Colorado, Austin, Washington, Waller, Harris, Liberty, Polk, Hardin, Jasper and Newton counties in Texas and then eastward into Coastal Louisiana through the northern portion of Calcasieu, Beauregard, Allen, South Vernon, Evangeline and Rapides parishes, covering an area approximately 325 miles long and 40 miles wide, or a total of about 13,000 square miles.

In order that the correlation of the various formations of Eocene series may be understood the following Texas-Louisiana Gulf Coast geologic section is quoted from an article by Alexander Deussen entitled "Oil-Producing Horizons of Gulf Coast in Texas and Louisiana" and published in "Gulf Coast Oil Fields" by the A.A.P.G.:

Series		Group		Formation
EOCENE	Claiborne		Jackson	Whittsett McElroy Caddell
		Upper	Yegua	Cockfield
				Upper Saline Bayou
				Lower Saline Bayou
		Lower	Cook Mountain	Milams Crockett Sparta
			Mount Selman	Weches Queen City Reclaw Cane River Carrizo
		Wilcox		Wilcox

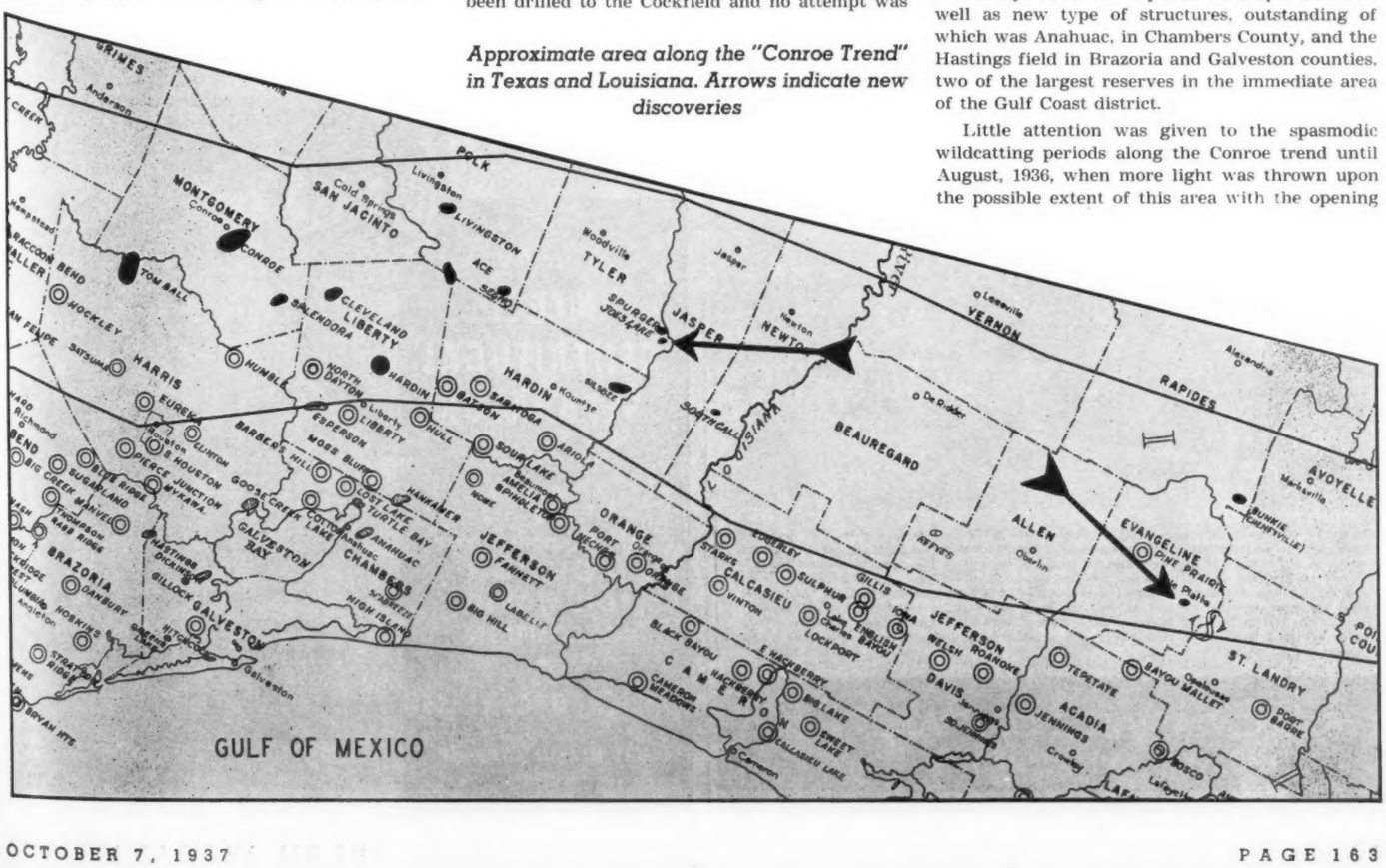
Following the discovery of Conroe in Montgomery County in 1931, which opened the first Eocene production from both the upper and lower sections of the Cockfield horizon, this area experienced a widespread drilling campaign which proved more or less unsuccessful due to the abandonment of numerous prospects. In most cases these structures were abandoned after tests had been drilled to the Cockfield and no attempt was made to explore deeper, although attractive possibilities were offered by sands in the lower Yegua, the Sparta member of the Claiborne, the Queen City member of the Mount Selman and several other sands in the Wilcox formation.

During a three-year period from 1931-33 interest in the Conroe trend was revived from time to time with the discovery of seven fields, namely, Tomball, Harris County, Splendora, Montgomery County, Cleveland, Liberty County, Spurger in Tyler County, Ace and Livingston in Polk County and Cheneyville in Rapides Parish, Louisiana. While several of these fields have proved profitable none are classified as major fields. Another discouraging factor to future exploration was that out of the seven discoveries no production was developed from the lower Cockfield strata which is the big sand at Conroe.

Open Sugarland Field

Interest in the area soon waned and attention reverted to the salt dome region which prior to the discovery of Conroe saw the opening of a new type of structure, namely the Sugerland field in Fort Bend County where production was found from a blanket sand overlying a nonpiercement type of dome. Following the discouraging results along the Conroe trend, an extensive geophysical and exploration program was started along the coast line in search of this type of structure that ultimately led to development of deeper sands as well as new type of structures, outstanding of which was Anahuac, in Chambers County, and the Hastings field in Brazoria and Galveston counties, two of the largest reserves in the immediate area of the Gulf Coast district.

Little attention was given to the spasmodic wildcatting periods along the Conroe trend until August, 1936, when more light was thrown upon the possible extent of this area with the opening



Approximate area along the "Conroe Trend" in Texas and Louisiana. Arrows indicate new discoveries

of the Silsbee field in northeastern Hardin County by the blowout of Republic Production Co. and Houston Oil Co. No. 1 Brooks, in the G. W. Brooks Survey. The well topped the Cockfield at 6,736 feet and while attempting a drill stem test at 6,945-82 feet the well blew out, caught fire and cratered. It was killed by the company's No. 2 Brooks, a relief well that was later completed in sand at 6,897-6,910 feet for an initial production of 425 bbls. of 38-gravity oil per day through a quarter-inch choke.

Prior to the discovery of Silsbee, the Conroe trend was believed to be located several miles north, consequently this discovery broadened the trend and opened several thousand additional acres for exploration that heretofore were thought to be too far south to be productive from the Cockfield.

Within a few days of this discovery, J. K. Dorrance opened the Segno field in southeastern Polk County with the completion of No. 1 Sarah Wing, located in section 15, I.&G.N. Survey. Production was found in the upper Cockfield at 5,150-94 feet. Subsequent development has proved the structure to be faulted and the producing limits are expected to be confined to a comparatively small area, comparable in size with the Livingston field.

No increase in activities were noticeable along the trend until the opening of the Cook Mountain horizon in northeastern Tyler County by Republic Production Co. and Houston Oil Co. Their No. 2 Hurd was completed in April of this year from sand at 7,630-41 feet, the total depth. The well was southeast of the Spurger area where a previous test was completed as a gas well in the Cockfield. This area has been named Joes Lake and added importance was given the field by the recent discovery of a second sand found by No. 2 Hurd, approximately 65 feet lower than the discovery horizon.

Development of the northeastern sector of the Conroe trend has been retarded to some extent by the extensive holdings held jointly by Houston Oil Co. and Republic Production Co. In 1921 Houston Oil Co. leased in fee several hundred thousand acres extending in an almost solid block through Hardin, Newton, Jasper and adjoining counties and as a result very little drilling had been done in this area. A deal was later made with Republic Production Co. whereby the two companies would share equally in the expense of developing these holdings which have been divided into units of several thousand acres.

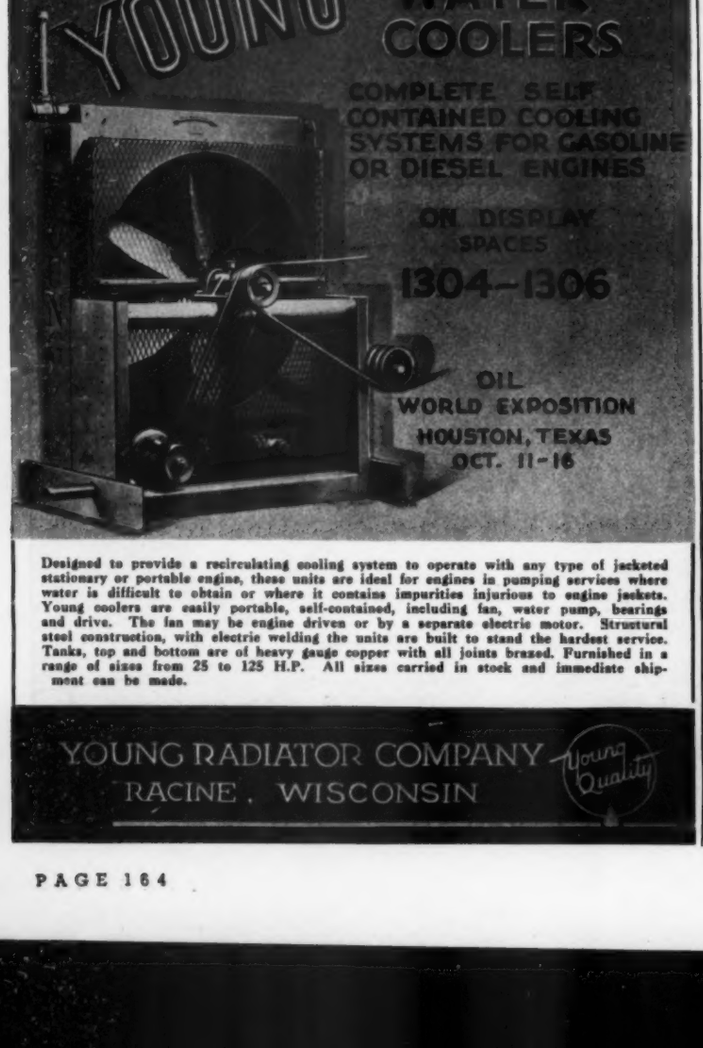
Since the first of the year the two companies started an exploration program and have recently opened their third field. It is approximately 18 miles northeast of Silsbee and about the same distance southeast of Spurger in the east-central portion of Newton County. The prospect is known as the South Call area and is on the Peavy-Moore Lumber Co. tract in section 42 of the H.&T.C. Survey. All production here will probably be from the upper section since salt water sand was cored in the lower section at 7,029 feet. South Call is the first pool to be opened in Newton County.

The present play along the trend is expected to gain momentum as a result of the first Sparta production in Coastal Louisiana, on the Villa Platte Prospect in northeastern Evangeline Parish, which was opened by completion of Continental Oil Co. No. 1 Folonie Tate. A 60-foot saturated section, identified as the Sparta member of the Claiborne formation, was cored from 8,977-9,040 feet and the well was completed through perforated casing at 9,007-35 feet for an initial production of 175 bbls. of pipe line oil per day through a three-sixteenths inch choke.

Like the Texas side of the Conroe trend, the Louisiana sector had been condemned by numerous dry holes which were abandoned after drilling to the Cockfield horizon. In all, a total of 22 dry holes has been drilled, some of which were located on favorable geophysical prospects. Due to the thickening of the producing beds eastward in Coastal Louisiana, the Cockfield is naturally encountered at a much greater depth than on the Texas side which is encountered at Conroe at approximately 5,000 feet.

Since the opening of the Spurger field several hundred thousand acres are reported to have been leased during the past few months and the number of geophysical crews already working in the area is being increased each week. One company is reported to have taken a geophysical option on several hundred thousand acres extending through four counties bordering the trend and selections are to be made with the anticipation of drilling at an early date. This development has already encouraged deeper exploration. At the Bammel area, in Harris County, a 10,000-foot hole was drilled and encouraging showings in the Cook Mountain are reported to have been encountered, while at the Segno field in southeastern Polk County Gulf Oil Corp. is drilling several hundred feet below the discovery horizon in an attempt to test the Cook Mountain.

Previous production from the Cook Mountain horizon has been confined to the Clay Creek dome in Washington County in the extreme western end of the Conroe trend where small production has been developed from shallow sands overlying the dome. After many years of exploration this sand, which has seldom been tested, now offers one of the largest potential reserves along the Gulf Coast district. At least it will be considered so until the entire Conroe trend is thoroughly tested by deeper exploration.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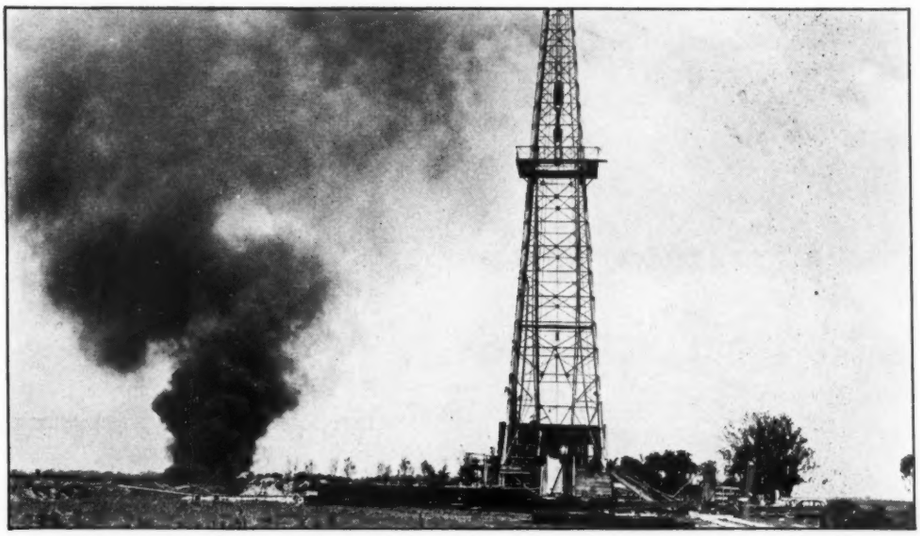
Casing Strings Two Miles Long Common in Gulf Coast Fields

With the increasing number of new discoveries along the Texas and Louisiana Gulf Coast district in which production has been developed at various horizons below 9,000 feet, cementing of 9,000- and 10,000-foot casing strings has become a common drilling practice. This particular phase of deep drilling has been watched with interest by the operator as well as the manufacturer who are now concerned in the casing program that is to be used in drilling 11,000- and 12,000-foot holes which have become quite numerous in this district during the past 12 months. By the encouragement already offered by deep drilling, it is reasonable to believe that deep drilling will be consistent and will ultimately lead to the development of producing horizons at 13,000- and 14,000-foot depths which will call for longer and heavier strings of casing.

While the procedure followed in drilling these deep holes is in the experimental stage, several remarkable engineering feats have been established. Of particular importance, of course, has been the landing of these record strings of casing that have ranged in size from 11¾ to 5 inches, and the ability of the operators to hold up the walls of the hole through the soft and unconsolidated formations by careful mud conditioning.

During the past 16 months there has been seven outstanding cementing jobs and some interesting data can be obtained from them as to what may be expected toward future casing requirements. Of particular importance is attached to the present exploration program by Continental Oil Co. at the Abbeville field in Vermilion Parish, Coastal Louisiana, where an attempt is being made to open production from a 12,000-foot horizon. This company has drilled one test to a total depth of 12,216 feet and at the present time is drilling below 11,909 feet on a second test. The drilling of these two wells involved the cementing of three exceptionally long strings of casing, two of them being the longest on record.



Humble Oil & Refining Co. No.1 Ellender, discovery well of Lirette field, Terrebonne Parish, flowing into pit from depth of 11,615 feet

The surface casing in the discovery well, No. 1 O. C. Hebert, consisted of 13⅜-inch cemented at 1,881 feet, which was followed by a 7-inch production string that was cemented with 2,000 sacks of cement at 10,947 feet. This string was made up of 8,947 feet of 7-inch O.D. 30-pound Grade D regular casing with 2,000 feet of 28-pound external upset seamless steel Doheny-Stone threaded casing on top, making a total load of 325,000 pounds. The hole was drilled to a depth of 11,732 feet, where the drill stem became stuck due to high gas pressure, and the hole was plugged back, sidetracked and redrilled to a total depth of 12,216 feet.

At this point, preparations were made for a production test and 5-inch casing was cemented at 11,795 feet, which is the longest string of this size pipe ever run. The pipe was made up into two strings. The bottom 5,000 feet consisted of 21-pound 5-inch O.D. flush joint, and the remainder, totaling approximately 6,975 feet, was 18-pound external upset casing. Several problems were involved in running this string, as the pipe had to pass through the window cut in the 7-inch casing at 10,800 feet and the 6-inch hole that was drilled outside the 7-inch allowed very little clearance for the pipe to go down. Bad shale conditions and high gas pressures added to the hazards of running the pipe.

Due to the small clearance in the sidetracked hole and the bad shale condition, it was necessary to rotate the pipe down in the open hole. For this purpose a bit was run on the bottom of the pipe. The two strings of pipe were run separately, which is believed to be the only stage setting ever made along the Gulf Coast. The flush joint of pipe was rotated in with the 3½-inch drill pipe. When down as far as it would go, the drill pipe was backed off, pulled and laid down and then the upset casing string was run in and screwed into the top flush joint of pipe. After several attempts to complete the well in the 11,000- and 12,000-foot horizons failed due to mechanical trouble, the hole was plugged back and completed for a wet gasser at approximately 7,500 feet.

From the experience gained from the first well, the casing program in the second test, No. 1 Brookshire, was changed considerably, as much heavier pipe was used. In this test 13⅜-inch surface casing was cemented at 2,175 feet and the protection string of 7⅝-inch casing was cemented at 11,342 feet with 1,500 sacks of cement. The pipe was special made external upset casing consisting of 4,000 feet of O.D. 43-pound Grade D threaded casing on bottom, with 7,342 feet of 34-pound Grade D external upset casing on top, making a total of 421,628 pounds, or approximately 96,628 pounds heavier than the same size casing that was cemented in the first test. The pipe was run in the conventional manner with float shoe and guide collar and was cemented in a total of 14 hours, including

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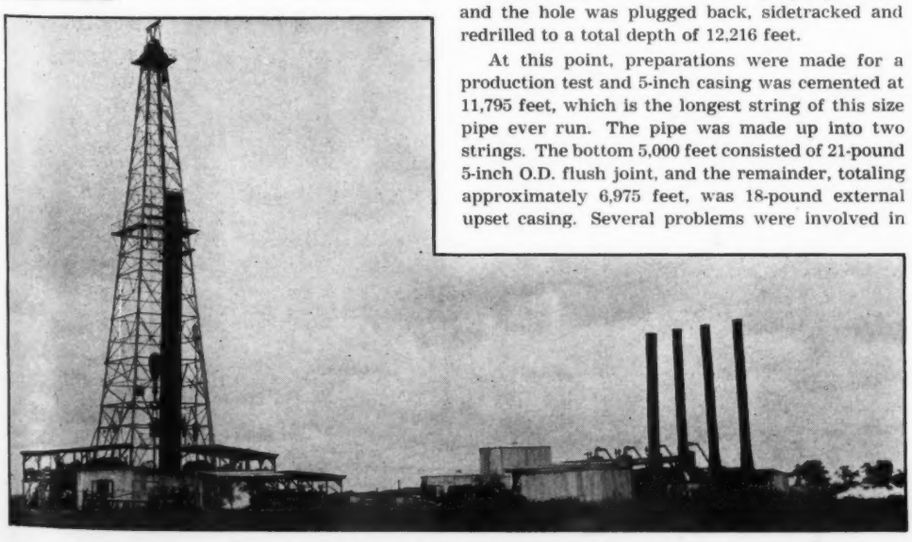

Continental Oil Co. No. 1 Brookshire, Abbeville field, Vermilion Parish, Coastal Louisiana, which is nearing the 12,000-foot horizon

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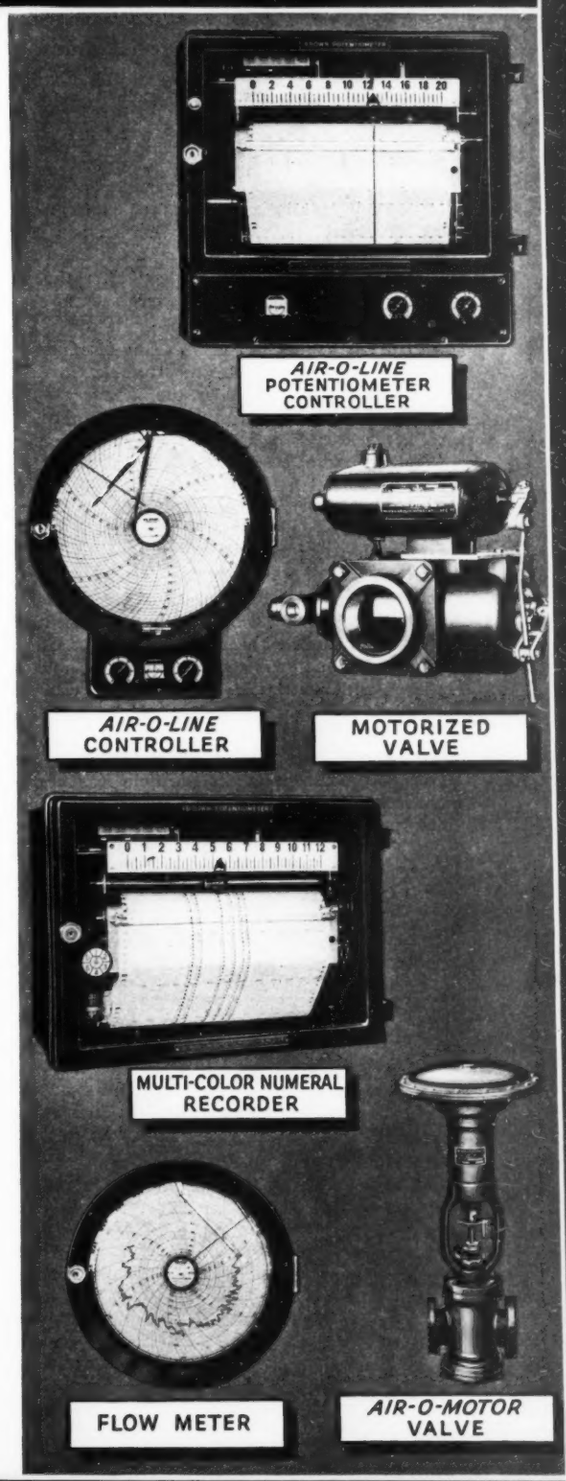

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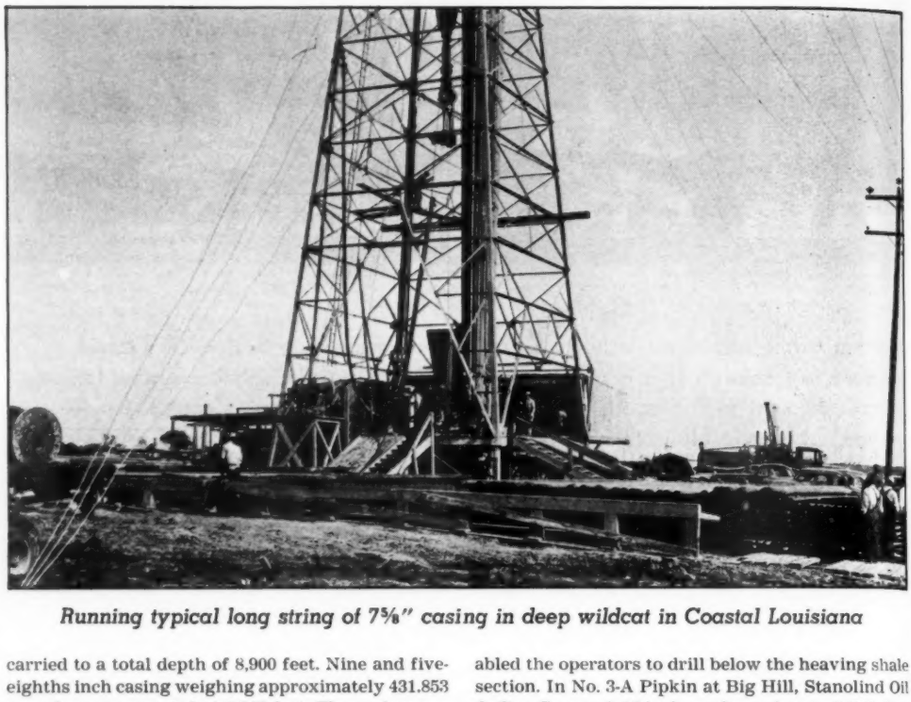
the welding of the lower 10 joints and mixing and pumping down the cement. The hole is being carried ahead with a 4½-inch drill stem compared to the 3½-inch used on the discovery well. Another interesting feature of this job was that the string was successfully cemented without trouble in 9,167 feet of open hole. This is the longest open hole on record in which pipe has been cemented.

Previous to the time the above casing was run, the record for the longest string of 7⅝-inch casing was held by the Texas Co. No. 1 Horseshoe Bayou, the discovery well of the Horseshoe Bayou field in St. Mary Parish. The last string of surface pipe consisting of 13⅜-inch casing was cemented at 1,496 feet and open hole was carried to 10,975 feet, where a protection string of 7⅝-inch was cemented with 1,500 sacks in 19 hours and 57 minutes. The string was made up of 2,000 feet of Grade D 34-pound on bottom followed by 5,200 feet of 30.6-pound and then 3,775 feet of upset 30.8-pound casing on top, making a total load of approximately 356,000 pounds. This well was scheduled to be drilled to 15,000 feet, but was completed for a large producer in a 10,000-foot horizon after the well blew out while the operators were attempting to free stuck drill stem.

The record for the longest string of casing was successfully cemented by the Humble Oil & Refining Co. in No. 1 Ellender, the discovery well of the Lirette field in Terrebonne Parish. In this well, the last string of surface pipe consisted of 13⅜-inch casing cemented at 2,707 feet. At 8,719 feet a protection string of 9⅝ inch, 43½-pound grade D casing was cemented with 400 sacks of regular cement in 22 hours. The hole was then carried to a total depth of 12,165 feet and following the running of an electrical coring survey, the hole was plugged back to 12,097 feet where a string of 7-inch 28.3 O.D. pipe was cemented with 430 sacks of uniflow cement. A total of 24 hours were required to run the pipe which was accomplished without trouble. No. 1 Ellender was completed through perforated casing at 11,610-15 feet for an initial production of 37 bbls. of 36-gravity oil per hour through a quarter-inch choke. However within recent weeks the hole was plugged back due to salt water intrusion and the well is now producing distillate at 10,546-48 feet.

The heaviest string of casing ever used was recently cemented by Stanolind Oil & Gas Co. in No. 1 Calcasieu National Bank, the discovery well of the South Jennings field in Jefferson Davis Parish. In this hole 13⅜-inch surface casing was cemented at 2,132 feet, and a 12½-inch hole was carried to a total depth of 8,900 feet. Nine and five-eighths inch casing weighing approximately 431.853 pounds was cemented at 8,842 feet. The casing was made up of 2,464 feet 6 inches of 8-thread grade D casing on bottom of which the lower 10 joints were welded. On top of this was 6,331 feet 4 inches of 47.6 pound casing which was followed by 1 joint of 31.7 feet of 54-pound pipe. The string was cemented with 550 sacks of cement which was mixed and pumped down under a pump pressure of 1,100 pounds. Total running and cementing time was 24 hours. The mud weight at the time the pipe was run was 10.1 pounds. This heavy string was run as a protection string as the hole was scheduled to be drilled below 10,000 feet, however, due to a blowout which stuck the drill stem, the hole was plugged back and the well completed for a distillate producer at approximately 8,500 feet.



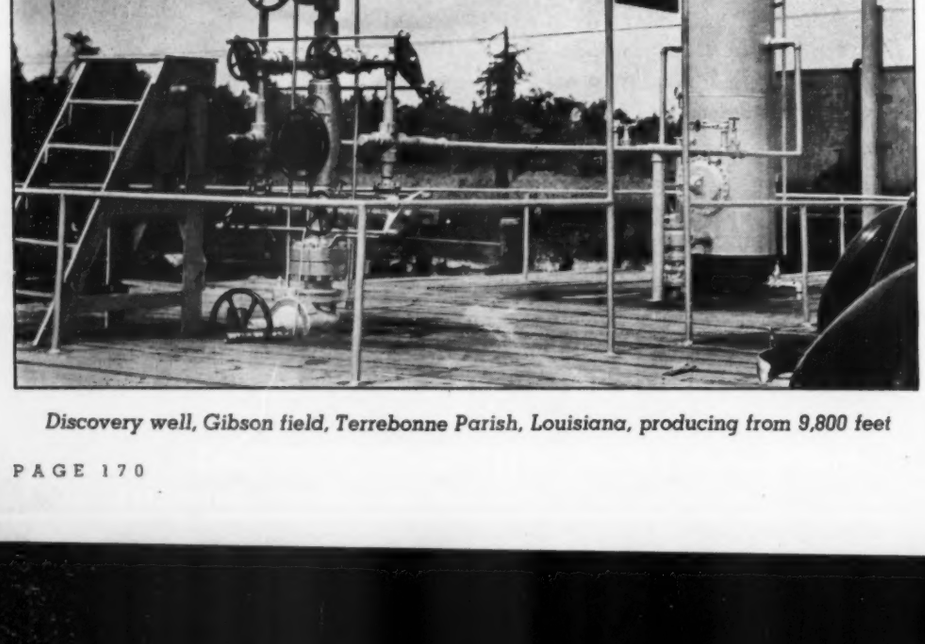
Running typical long string of 7⅝" casing in deep wildcat in Coastal Louisiana

The 11¾-inch casing as a protection against heaving shale has been used quite frequently by the Stanolind Oil & Gas Co. and Continental Oil Co. at Big Hill dome in Jefferson County and at Shepherds Mott and Citrus Grove in Matagorda County. While the heaving shale problem has never been conquered, the use of this size casing has enabled the operators to drill below the heaving shale section. In No. 3-A Pipkin at Big Hill, Stanolind Oil & Gas Co. used 16-inch surface pipe to 1,575 feet and a 14⅞-inch hole was carried to a total depth of 6,100 feet. The 11¾-inch string consisted of 6,093 feet of 41-pound National grade D long threaded pipe and was run in and cemented with 950 sacks of regular cement in 18 hours. Three hours were required to mix and pump down the cement which was started in the hole under a pump pressure of 500 pounds and circulation was broken at 3,100 pounds.

The longest string of this size pipe was cemented in No. 2 Robbins at the Citrus Grove Prospect in Matagorda County by the Continental Oil Co. Sixteen inch surface pipe was cemented at 2,986 feet with 800 sacks and the protection string was cemented at 6,430 feet with 266 sacks. All of the pipe was 61.8-pound threaded National grade D seamless casing weighing approximately 392,230 pounds.

One of the most interesting features of deep drilling has been the large amount of open hole drilled before running protection casing. In this respect Stanolind Oil & Gas Co. holds the record for the largest amount of open hole drilled by the recent abandonment of No. 1 Stovall, a wildcat in Vermilion Parish that was abandoned at 12,128 feet of which 10,144 feet was open hole.

Of the 11 fields producing below 9,000 feet, the most consistent casing program is being followed by the Texas Co. in the development of the Lafitte field in Jefferson Parish where a total of 15 producers have been completed at depths from 9,400 to 10,200 feet. The handling of long strings of casing here is especially interesting due to the fact that all drilling is done from barges. The surface casing consists of 13⅜-inch, 54.50-pound pipe and is usually cemented at approximately 1,353 feet. Open hole is drilled from the surface pipe through the producing sand and the 7⅝-inch production string is cemented on bottom and the well tested through perforated casing. The production string is grade D casing and is made up of approximately 1,990 feet of 34 pound pipe, 6,259 feet of 30-pound and 1,995 feet of 30.8-pound special upset casing. In the early development of the field, 2,500 sacks of cement were used which was chilled with 5,000 pounds of ice. The number of sacks has been reduced to 1,200 which is pumped down by the three cementing trucks. The plug is drilled with 2½-inch upset end tubing.



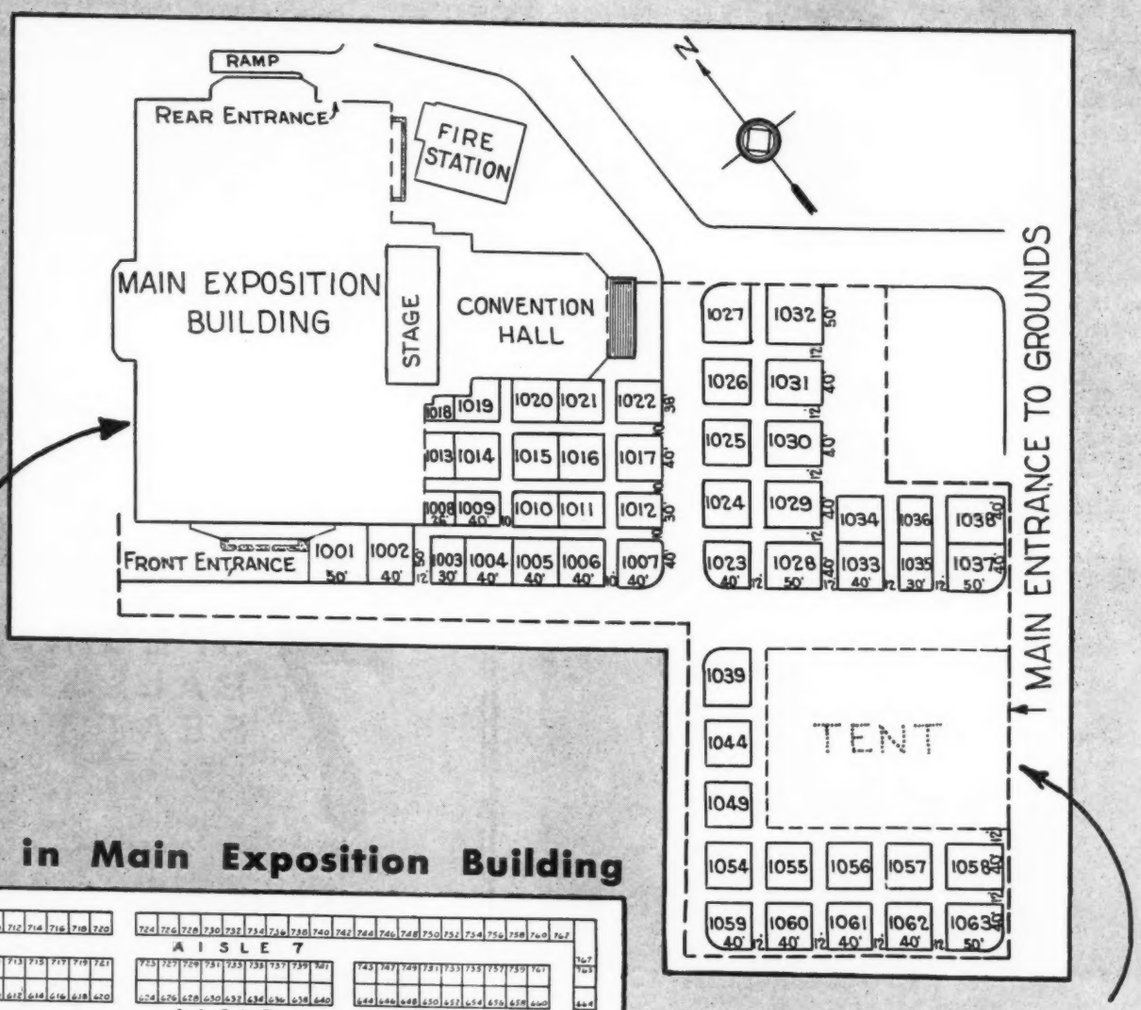
Discovery well, Gibson field, Terrebonne Parish, Louisiana, producing from 9,800 feet

SPACE DIAGRAM OF

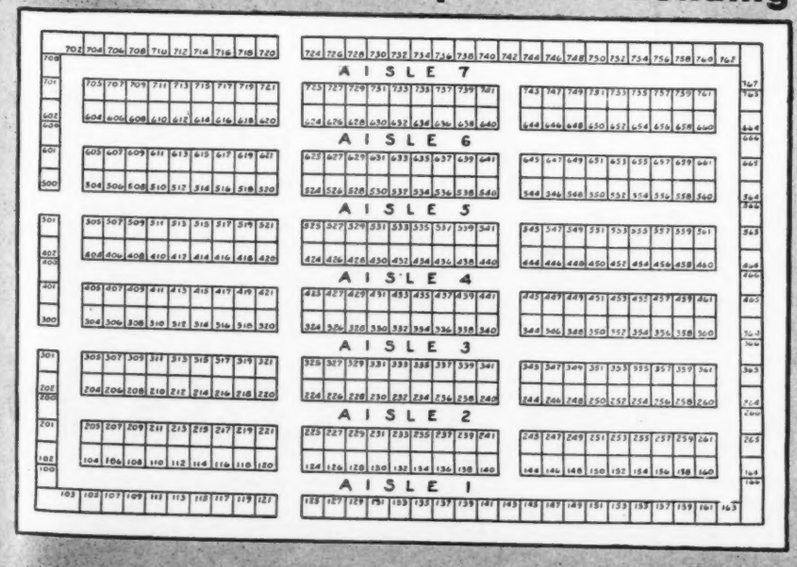
OIL-WORLD EXPOSITION GROUNDS

HOUSTON, TEXAS

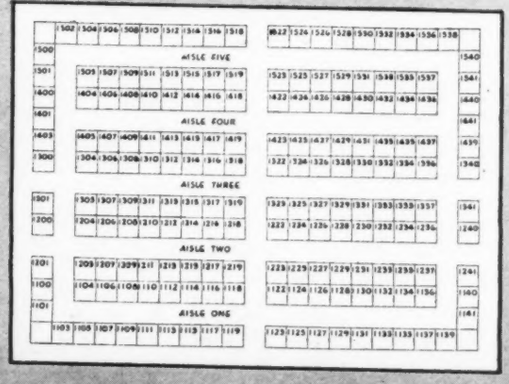
OCT. 11-16, 1937

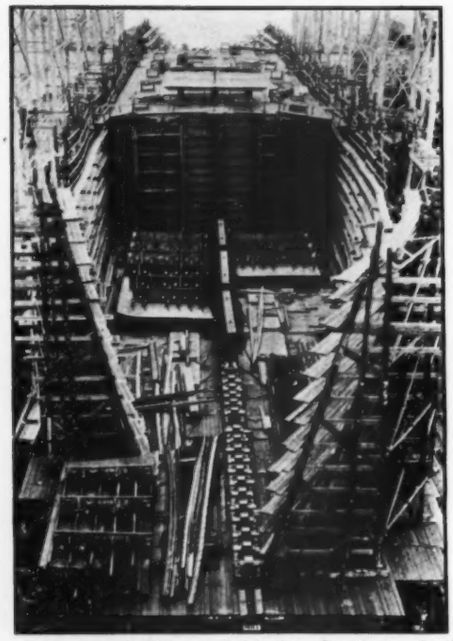


Booths in Main Exposition Building



Booths Under Tent





The new 18,500-ton welded tanker being built for the Atlantic Refining Co. at Chester, Pa. The vessel will have a cargo capacity of 156,000 bbls. of gasoline, a length of 521 feet between perpendiculars, and a beam of 70 feet. Turbo-electric engines developing 5,000 hp. will give the tanker a speed of over 13 knots, enabling it to make the trip between Texas Gulf ports and Philadelphia in six days

Repressuring on Gulf Coast

(Continued from Page 161)

have been recharged and it is reported the formation pressure is now about 100 pounds higher than originally. This added pressure is accounted for through the movement of edge water updip.

Laboratory investigations are being carried on in connection with this problem and Sage and Lacey of the California Institute of Technology, Pasadena, Calif.; W. K. Lewis, Massachusetts Institute of Technology, Cambridge, Mass., the U. S. Bureau of Mines and several laboratory investigators for major oil companies have contributed much data relative to the behavior of hydrocarbons at varying temperatures and pressures. While all authorities do not agree upon some of the details, it is agreed that pressures in the formations have been at equilibrium for long periods of time and hydrocarbons trapped in those formations are in either a vapor or fluid phase depending upon critical pressures and temperatures existing in the reservoirs.

Upset Equilibrium

When the drill penetrates the reservoir the state of equilibrium is upset and the gas and oil will flow towards the point of low pressure established by the drilling of the well. Gas under pressures in excess of 3,000 pounds is so dense as to be practically a fluid but as this gas escapes into the well and ascends the pressure is reduced and at some critical pressure the hydrocarbon molecules will precipitate as a fluid which will be stable under certain pressure and temperature conditions but it can again be vaporized by changing those conditions. It has been found that temperature does not play a very important part in this precipitation of fluid from gas under normal production practice conditions, for it is reported many oil and gas separators are quite hot when the hot formation gas is passing through them and therefore the temperature change between the bottom of the hole and the oil and gas separator cannot be great.

If this fact is conceded then it is reasonable to assume that as pressure is lowered in the formation part of the gas will precipitate a fluid and this distillate will later be very hard to recover. The real importance of this is the lowering of ultimate recovery from these deep wells, which are costly to drill, and it is therefore very essential the maximum recovery of oil and gas be secured to aid in paying for development and production costs.

Repressuring Costs

To repressure gas to pressures above 3,000 pounds per square inch is costly but not too high to be considered where the ultimate recovery of oil from an expensive deep well is involved. It is quite essential this recharging be started early in the life of the field and the work kept up during the entire life of the wells. As most of these deep-seated pay formations are located upon structures of low relief there is usually edge water under high pressure adjacent to the oil downdip and as the well is produced this water will move updip and aid in the repressuring operation.

While only two problems have been outlined in this article there are many others of equal importance, for deep drilling along the Gulf Coast has many disadvantages as well as advantages and it is now proven there are a great many untested deep-seated structures which should be charged with gas or oil or both hydrocarbon mixtures. To recover this material profitably is the problem of the engineer and much progress is being made in solving it.

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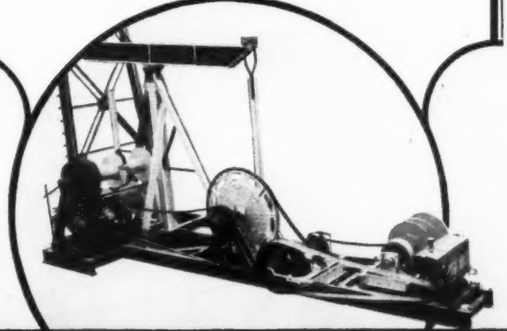

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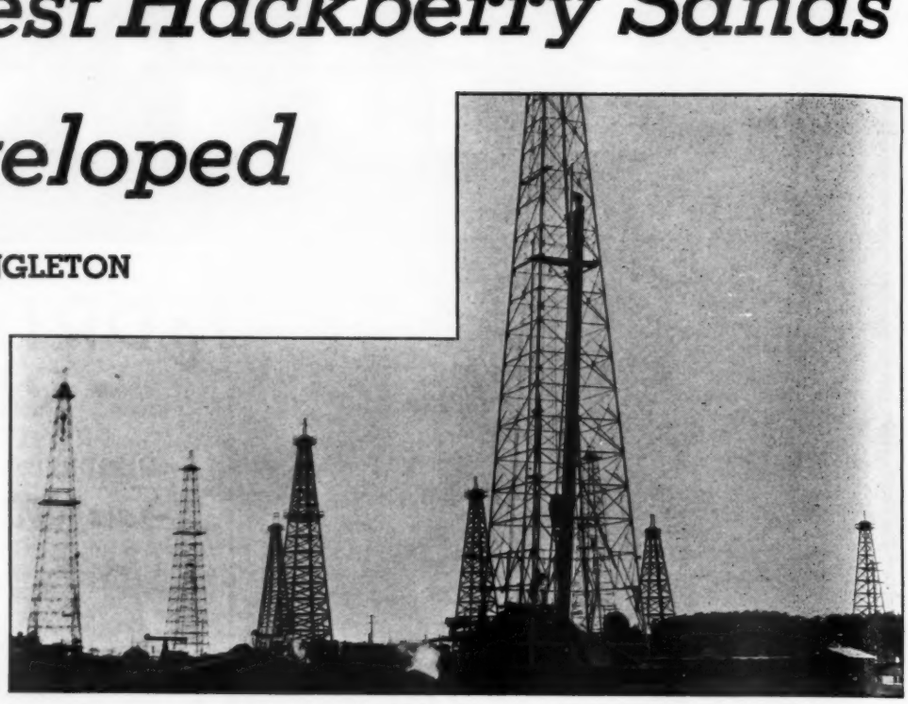
Deeper West Hackberry Sands Being Developed

By F. L. SINGLETON



Drilling scene on the southeast flank of West Hackberry field, Cameron Parish, where the discovery of the first Oligocene sand production has started a large drilling campaign

LAKE CHARLES, La., Oct. 4.—The third old salt dome structure in Coastal Louisiana in which drilling operations have been revived by the development of deeper sands is the West Hackberry field in Cameron Parish, where an extensive drilling campaign is under way following opening of the first Oligocene sand production on the southeast flank last November by Stanolind Oil & Gas Co. As a result of this discovery, the daily average production of the field which a year ago was only 400 bbls. has been increased to 4,500 bbls.

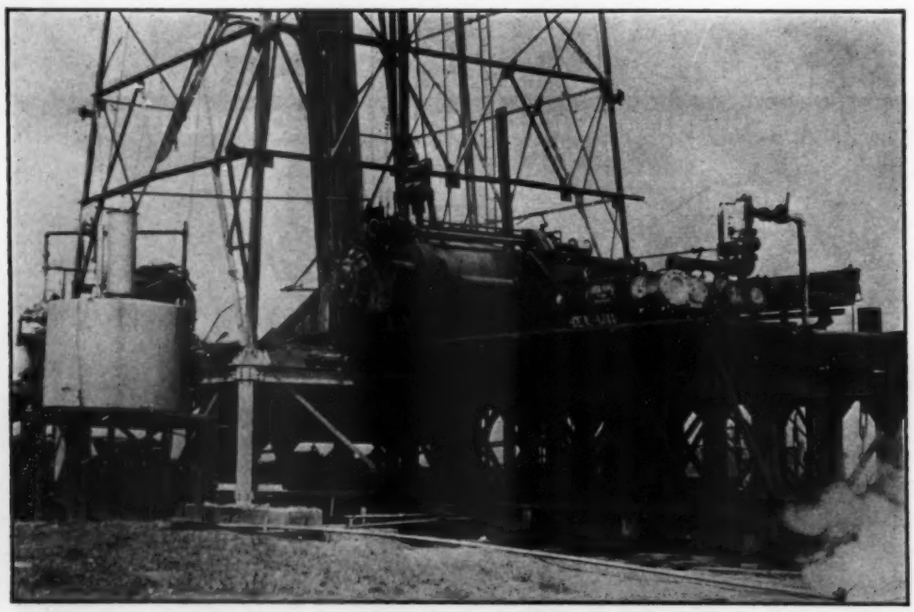
Development of this old structure has been continuous since 1902, although the first commercial production was not opened until 1928. It is approximately 26 miles south of the town of Sulphur, centering in Township 12s-10w, in the north central part of the parish, and was discovered by surface indications. Early development was confined mainly to shallow drilling which served to outline the caprock area found to center in sections 20 and 21. Caprock was topped at 1,400 to 1,800 feet but although several showings of oil and sulfur were encountered none produced commercially.

Early Production

Production heretofore has been from the Pliocene and Miocene sands at 2,900 to 3,200 feet, confined to comparatively small areas on the south, west and east flanks. First commercial production was developed on the south flank by Cameron Oil Co. No. 2 Luger in section 28, which flowed 180 bbls. of 22-gravity oil from the Miocene sand bottomed at 3,154 feet. Approximately 30 producers were completed in this sand which proved an area of only 15 acres.

Following this development, Sunshine Oil Co. No. 1 Ellender, 1½ miles northwest, in section 27, opened the east flank with an initial flow of 600 bbls. of 21-gravity oil from a total depth of 3,253 feet. Production was confined to about 25 acres extending in a narrow strip about three-quarters of a mile long and 300 feet wide to the SE quarter of section 22.

The present activity was started by completion of Stanolind Oil & Gas Co. No. 5 Carter and Sweeney, several hundred feet northeast in the SW quarter of section 22. The Oligocene sand was found at 3,816 feet and the well flowed 42 bbls. of pipe line oil per hour through a quarter-inch choke with tubing pressure 1,280 pounds and casing pressure 1,190 pounds.



Type of drilling rig used in the West Hackberry field

There has been a total of 19 producers completed in this area which has extended production over approximately 300 acres in a northeast-southwest direction through section 22, covering an area of about a half mile in length and the same distance in width. The development takes in a section of the old producing area and drilling operations are being done within a few feet of old pumping wells. Of the 19 producers, seven have been completed by Stanolind Oil & Gas Co., seven by W. T. Burton and five by Burton-Sutton joint interest. Active drilling operations include two rigs by W. T. Burton, one by Burton-Sutton joint interest, four by Stanolind Oil & Gas Co. and one by M. P. O'Meara.

Heaving Shale

The exploration around the flanks of this dome has been retarded by a thick section of heaving shale overlying the outer edges of the structure which is found at an average depth of 3,200 feet and has an average thickness of 1,000 feet. Deep drilling on the southeast flank that ultimately led to discovery of the present sand was encouraged by an old test drilled several years ago by Yount-Lee Oil Co. This test, No. 1 Vincent, was successfully drilled through the shale and was completed for a small producer at a total depth of 3,816 feet. Several deep tests have been drilled on the flanks of the structure and some encouraging showings of oil have been encountered but due to mechanical trouble caused by the heaving shale, no thorough test was made. The deepest test was about a half mile south of the south flank in section 33 and was drilled by Federal Petroleum Co. which abandoned the hole at 7,834 feet after encountering showings of oil and gas at 3,909, 5,858, 6,376 and 6,640 feet.

The Oligocene sand on the southeast flank lies at a 45-degree angle with the dome and has a thickness of 20 to 50 feet, found at average depths of 3,600 to 4,900 feet. The oil sand is overlapped by a high pressure gas sand and extreme precaution is taken in drilling. Drilling fluid of 12-pound weight is carried from the top through the heaving shale and the weight is increased to 16 pounds while

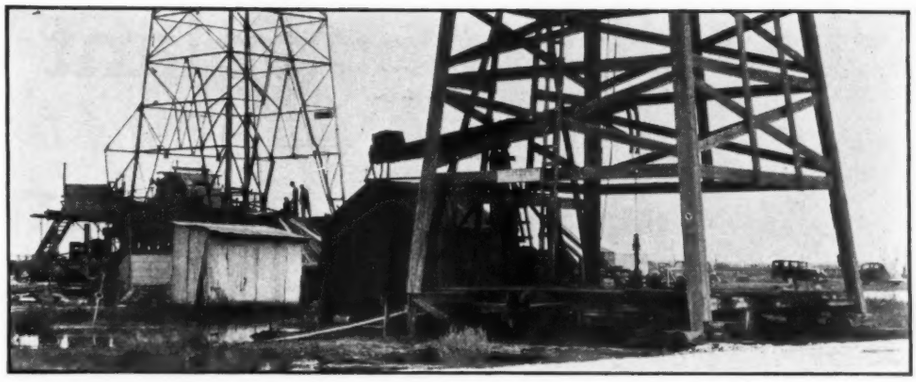
coring through the gas strata. The production string consists of 7-inch casing and is cemented a few feet below the top of the saturated section.

Another attractive spot around the dome which has possibilities of deeper production centers around section 30 on the west flank where a small area consisting of approximately 10 acres was proven productive in 1930 by Rycade Oil Co. No. 1 Gulf land. Production was from two sands at 3,900 and 4,300 feet.

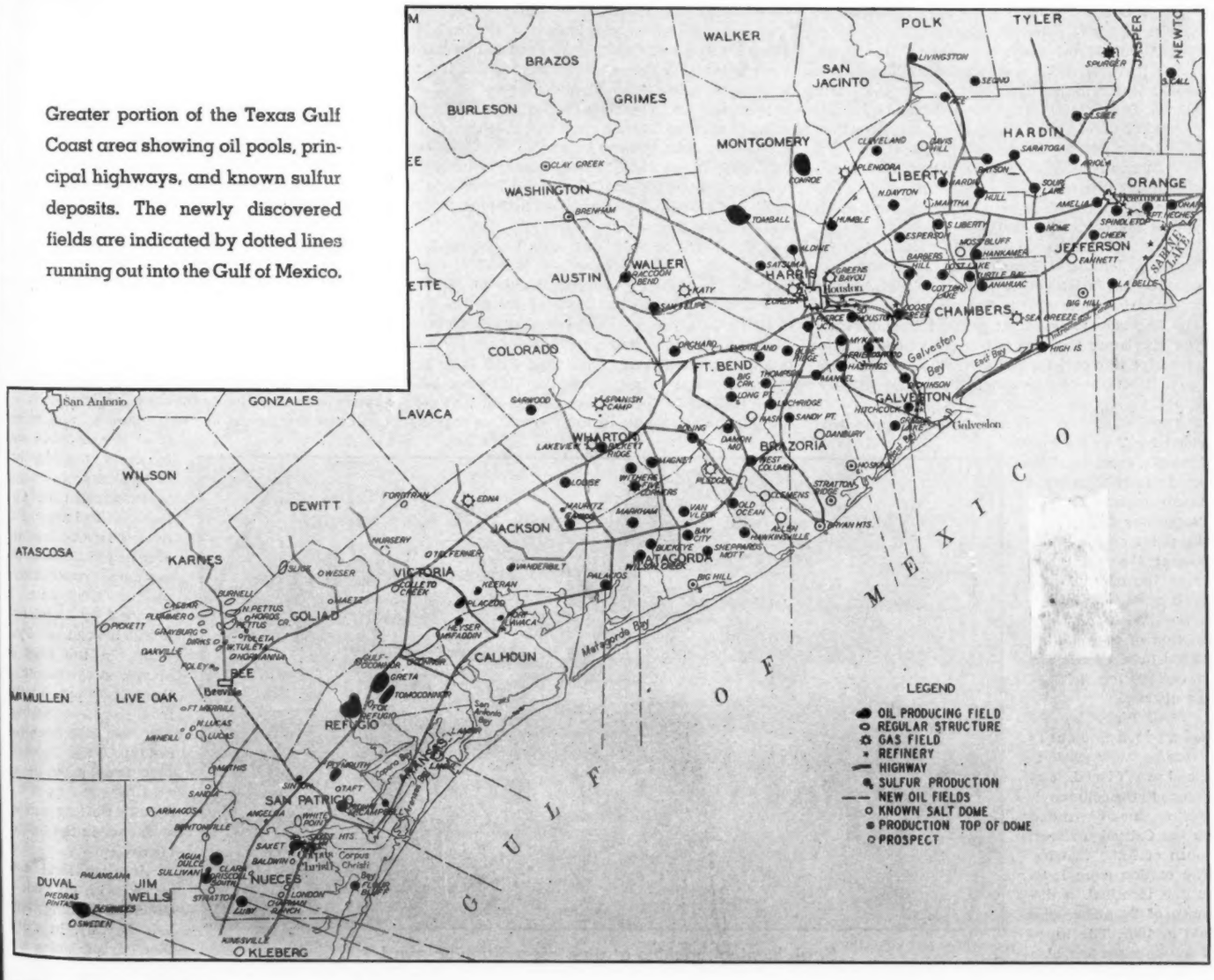
The development at West Hackberry is expected to be extended over several years as Stanolind Oil & Gas Co., which obtained extensive holdings around the flanks of both the West and East Hackberry domes from the old Yount-Lee Oil Co., has acquired additional acreage and has recently started construction of a large oil field camp. The camp is on the south side of Kelso Bayou, midway between the domes, and includes seven residential structures, warehouses and office buildings equipped with modern conveniences.

While the development at Hackberry has been extended over 35 years, the potentialities of this old structure have only been scratched. Future development has been encouraged by drilling of several deep tests which have encountered favorable showings of oil and gas. Recent developments on the north flank by Stanolind Oil & Gas Co. have also indicated commercial possibilities and a determined effort is being made to develop this area, although results have not been too favorable.

The development of deeper producing sands around the flanks of old salt dome structures has added several million barrels of additional crude reserves to the Coastal Louisiana district which has renewed interest in practically every old dome, several of which were abandoned after the shallow sands became depleted or when production became too low to produce commercially. Since discovery of prolific production on the southwest flank of the old Jennings field, Acadia Parish, which in a year's time has boosted the daily average of the field from 2,000 to 11,000 bbls., all available acreage around these domes has been released and indications point to a continuation of the present active exploration program within this area.



Contrast the old and new methods of development. Here are shown a modern drilling rig and steel derrick within a few feet of an old shallow pumping well. Southeast flank, West Hackberry field, Cameron Parish, Coastal Louisiana



Greater portion of the Texas Gulf Coast area showing oil pools, principal highways, and known sulfur deposits. The newly discovered fields are indicated by dotted lines running out into the Gulf of Mexico.

Pipe Lines Supplant Waterways in Coastal Louisiana District

Until recent years, Coastal Louisiana operators depended almost entirely upon the district's natural waterways for transportation of their oil.

The latest and largest addition to Coastal Louisiana's list of pipe lines is the project started by Standard Pipe Line Co. In this project, a main line, totaling 96 miles, exclusive of the Atchafalaya River crossing, is being laid from the Roanoke field, as a western terminus, through the Jennings field, Acadia Parish, to Port Allen on the Mississippi River opposite Baton Rouge. A south branch, totaling 45 miles, is being laid from the Jeanerette field, St. Mary Parish, through New Iberia and St. Martinsville to Sunset where it joins the main line.

Making up the main line will be 42 miles of 6-inch pipe from Roanoke to Sunset; 32 miles of 8-inch pipe from Sunset to a point on the west bank of the Atchafalaya River; and 22 miles of 10-inch pipe from the east bank of the river to Port Allen. At the point of crossing, the Atchafalaya River is about a mile wide, and at least a double line will be laid for this. On the south branch from the Sunset junction south, 8-inch pipe will be laid a distance of 15 miles, with 6-inch pipe being put in the remaining 30 miles.

Williams Brothers (Apex Construction Co.) are general contractors. They expect to complete the lines within a couple of months. From 2 to 3 miles of pipe are being laid daily.

Fields to be served by this system include Roanoke, Jennings (Evangeline), Jeanerette and New Iberia. Various other fields are located along or near the route of the lines, and connections may be made to them. At present Roanoke and New Iberia are the only two fields which already have pipe line outlets, and of these only Roanoke has a direct line to a terminal shipping to refinery points.

The New Iberia pipe line outlet, recently provided by Texas Pipe Line Co., consists of approximately 15 miles of 4-inch pipe laid to a deep-water barge loading point on the Intercoastal Canal. From there the oil is moved by barge to final destination. With daily production of more than 15,000 bbls. this is one of the leading fields of the district.

Shell Pipe Line Co. has a 6-inch line out of Roanoke westward to the Iowa field, and thence to the company's tank farm and terminal on the Calcasieu River, south of Lake Charles. The section from Iowa to the terminal, a distance of 20 miles, was laid in 1932. The Iowa-Roanoke extension, also 20 miles, was laid in 1934. Shell Petroleum Corp. and Humble Oil & Refining Co. are the only operators in the field, which has daily production of 5,000 bbls.

Continental System

Although the oldest field on the Louisiana Coast, and the second oldest on the entire Gulf Coast, with a total recovery to date of more than 50,000,000 bbls. of oil, Jennings never has had a pipe line outlet. In addition to the pipe line now being provided by the new Standard line, Continental Oil Co. is laying a 6-inch line to the company's Tepetate field, a distance of 12 miles, where it connects with a line from that field to terminal facilities on the Calcasieu River at Lake Charles.

The latter line, 47 miles of 6⅝-inch pipe, was laid during 1936. At the same time an 8⅝-inch gas line was laid from the field to Lake Charles, both lines being in the same ditch.

In some instances, pipe lines have not been laid direct to deep-water terminal points, but rather to some point on a major waterway, such as the Intercoastal Canal. Although these do not eliminate barge hauls entirely, they do facilitate the movement of oil. The Intercoastal Canal, through which the largest of barges can be moved, provides a direct water route both to deep-water terminals or refinery centers on the Mississippi River and to those of Lake Charles, Beaumont and Port Arthur and Houston-Texas City districts.

Until 1932, the only long lines in Coastal Louisiana were two which served the Vinton and Edgerly fields in the southwest side of the district near the Texas line. One of these was Gulf Refining Co.'s line extending from Edgerly through Vinton to Orange, Tex., a distance of not over 25 miles. The other was Texas Pipe Line Co.'s line from Vinton to Orange. This line has since been taken up. Gulf's line was extended from Vinton to the Hackberry district in 1934, providing that district with its first pipe line outlet for its oil.

In 1932, a pipe line outlet for the Port Barre field, St. Landry Parish, was provided when Texas Pipe Line Co. laid 45 miles of 6-inch and 4-inch line from the field to Port Allen on the Mississippi River. From that point, the oil could be moved by tanker to any port. In the same year, a pipe line outlet was provided for the Iowa field, on the Calcasieu-Jeff Davis Parish line, and about 12 miles east of Lake Charles, with the laying by Shell Pipe Line Co. of 20 miles of 6-inch pipe to the company's new terminal south of Lake Charles. Magnolia Petroleum Co. also laid a small line to the nearest point on Calcasieu River, a distance of about 4 miles, where barges could be loaded for transportation down the river to deep water.

Pipe line outlet for the Gueydan field, Vermilion Parish, was given by Pure Pipe Line Co., which, in 1932, laid 12 miles of line from the field to the Mermentau River (Intercoastal Canal), where docks were built for loading large barges. The oil is barged to Pure Oil Co.'s refinery at Smiths Bluff, south of Beaumont, Tex. This line was extended 32 miles northward in 1934 to the Bosco field, in which Pure Oil Co. owns a 50 per cent interest with Superior Oil Co.

The Lafitte field, located in the marshes of Jefferson Parish, was given a pipe line outlet late in 1935 with the laying by Texas Pipe Line Co. of a 6-inch line to Marrero on the Mississippi River across from New Orleans, a distance of 26 miles. At Marrero the company has a tank farm and terminal for loading tankers. Looping 16 miles of this line with 8-inch pipe has just been completed to increase the capacity out of the line. The field is only a short distance to the Intercoastal Canal which is readily accessible by water through canals which cut through the field. With the line to Marrero, the field's production can be loaded directly on tankers for its ultimate destination. Seven miles of the line is through marshes, and as the field is accessible only by water, the pipe had to be laid from barges.

Production of the Garden Island Bay field, located in the Mississippi Delta at the extreme southeastern tip of the state, is moved by tankers which load at Pilot Point, in the Gulf of Mexico at the mouth of the Mississippi, 9 miles from the field. A 6-inch line was laid from the field to Pilot Point in 1936. Previously, the oil was barged from the field to waiting tankers at anchor in the Gulf of Mexico.

Another field now served with pipe line is Gillis (including English Bayou), in Calcasieu Parish. Union Sul-

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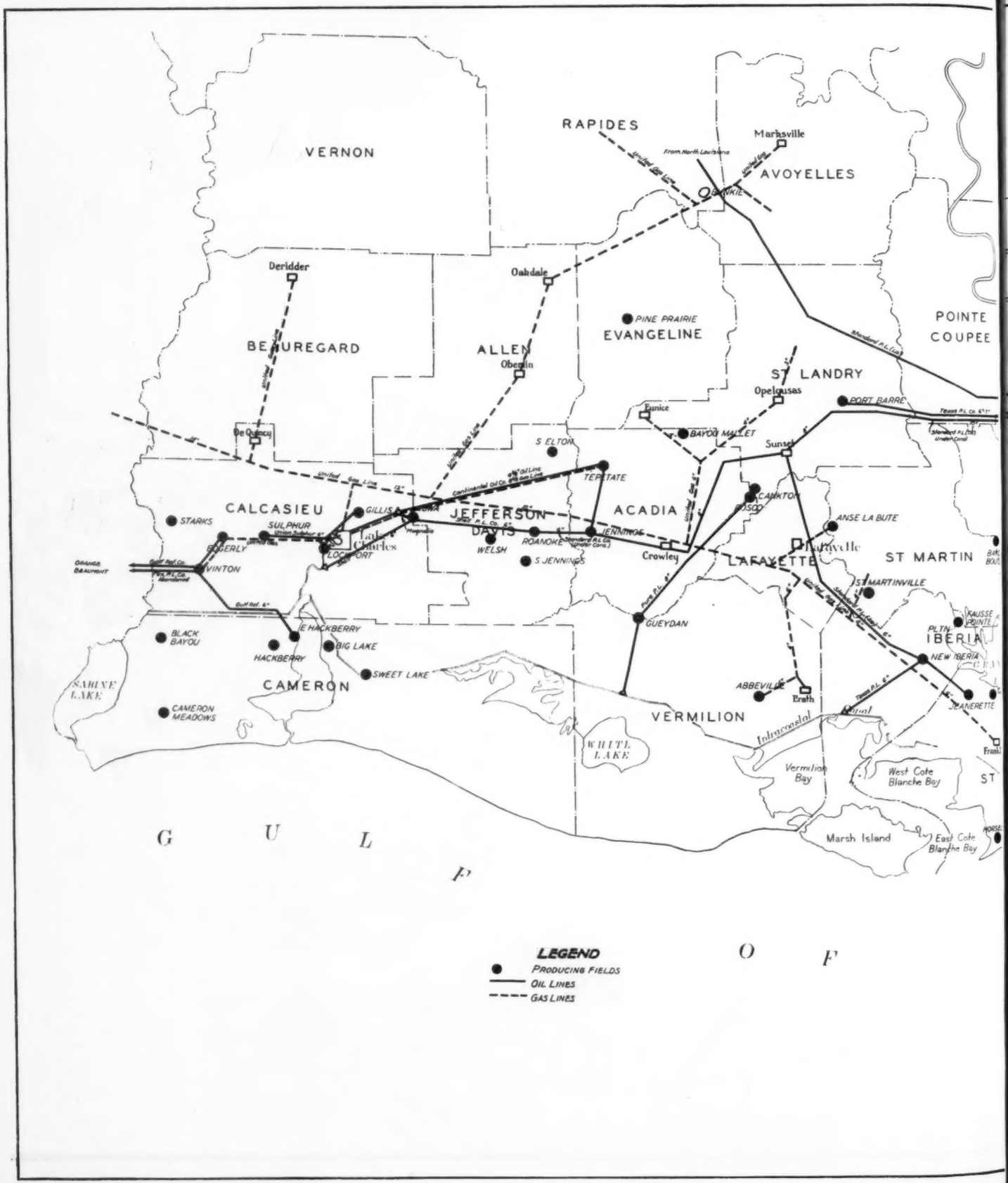
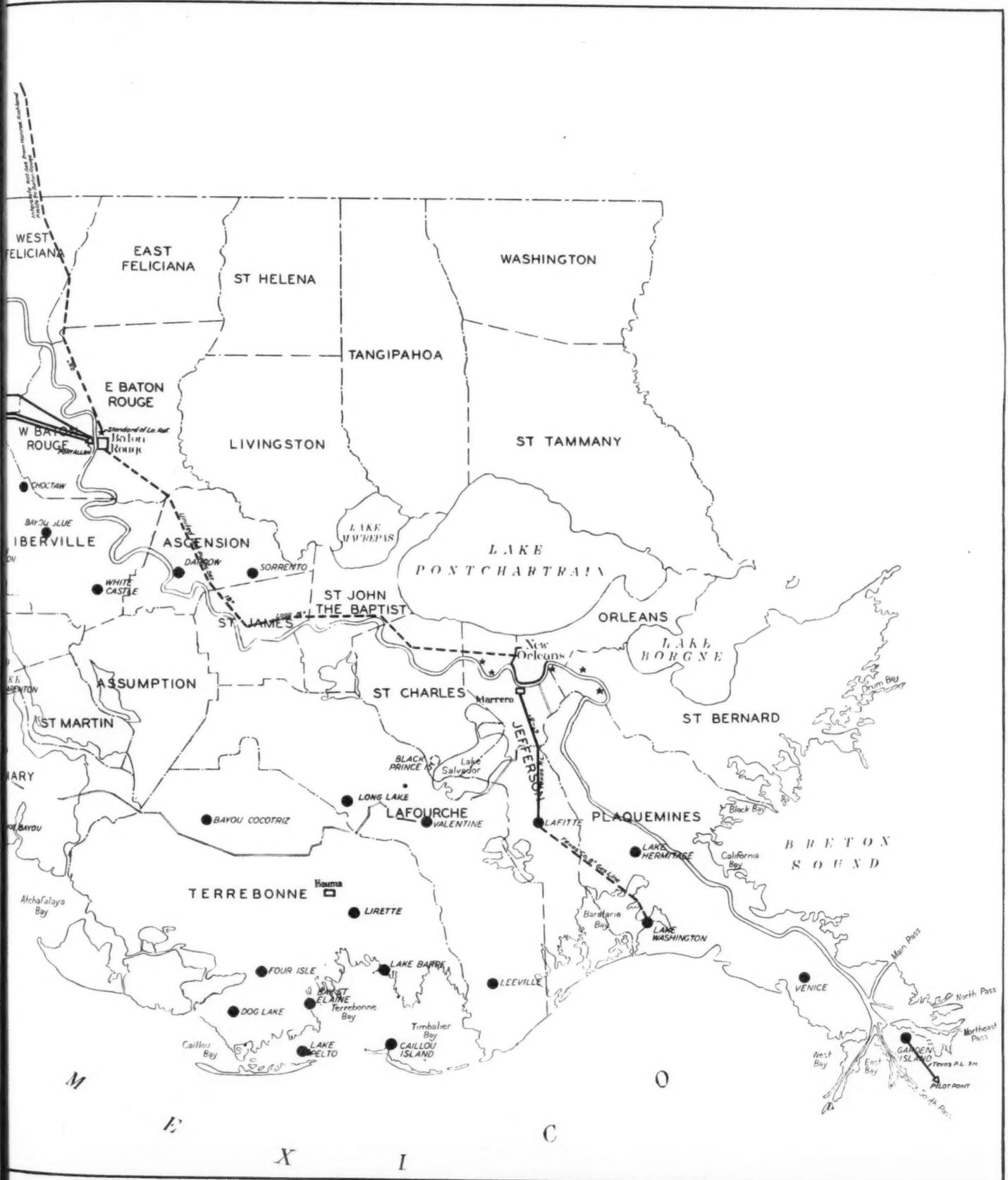
phur Co. laid a 6-inch line out of this field to its Rose Bluff terminal at Lake Charles, a distance of 14½ miles, in 1936. This company also has a similar line from its Sulphur field to the same terminal. The latter was laid several years ago.

Two new gas lines have been laid within the past year and a half out of Coastal Louisiana fields. The latest is 24½ miles of 8-inch line laid by the Texas Co. from its Lafitte field to Lake Washington (Lake Grand Ecaille), where it serves the sulfur mines of the Freeport Sulphur Co. This line was laid through marshes the entire distance. Continental Oil Co. has an 8⅝-inch gas line, laid in 1936, from its Tepetate field, in Acadia Parish, South Louisiana, to Lake Charles, a distance of 47



miles. This line was laid in the same ditch with a 6⅝-inch oil line.

United Gas Public Service Co. operates a general gas distribution system serving most of the principal cities and towns and industrial consumers from the Texas line as far east as Franklin. The system, including trunk line, which connects with the company's northeast Texas-Beaumont trunk line at a point near Kirbyville, Tex., and its laterals, totals approximately 500 miles of pipe. The same company has a trunk line from Baton Rouge to New Orleans, supplying the latter city. This line takes gas from Interstate Natural Gas Co., which has a line from the Monroe and Richland fields, northeast Louisiana to Baton Rouge.



Producing fields and main oil and gas lines in Coastal Louisiana

Directory of Exhibits at Oil-World Exposition

Houston, Oct. 11-16, 1937

A-1 Bit Co.
Houston, Tex.
Booths 652, 654

Abercrombie Pump Co.
Houston, Tex.
Booths 606, 707

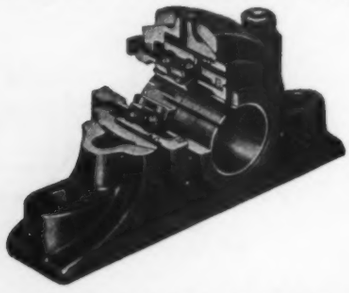
The Abercrombie Pump Co. will display one of its 20-inch stroke fluid-piston slushpumps, direct-connected to a 16¼ by 20-inch steam end. This type of equipment is designed for discharge pressures up to 3,000 pounds per square inch and is especially applicable to heavy-duty deep drilling. The fluid end incorporates the all-steel sectional construction characteristic of all fluid-piston slushpumps. Valve-seats are of the type developed for slushpump service by Abercrombie Pump Co., the special feature of which is the ease with which seats may be removed by hand without the use of a seat-puller.

Abercrombie will have also a working display of its several types and sizes of shear-relief valves, ranging in size from 1¼-inch low pressure to 3-inch high pressure.

A new type pressure-gauge will also be displayed. This gauge incorporates a diaphragm feature eliminating the possibility of drilling-mud entering the gauge mechanism, and also incorporates a dampener which eliminates the effect of pump-stroke pulsations. This gauge unit is designed for a pressure range of 0 to 5,000 pounds per square inch.

Ahlberg Bearing Co.
Booth 348
In attendance
F. S. BARKDOLL P. H. STAERH

The display of the Ahlberg Bearing Co., Chicago, will consist of three distinct lines, in which the company's new ball-bearing pillow-blocks will be featured. These are new in design, distinctive in appearance and contain patented features. Notable among these is the new method of locking the bearings to the shaft. Three series are available for light, medium and heavy loads.



The second item in importance to the user of bearings is the company's line of Ahlberg ground bearings. These are ball bearings which have been reconditioned to the highest standards of new bearing manufacture. The raceways (ball tracks) of worn bearings are precision-ground and lapped to provide new surfaces. New oversize balls and a new retainer are fitted, making the completed bearing, according to the company, the equal in service to that bearing when new. Ahlberg ground bearings are sold only on an exchange basis at a substantial saving to the user.

The third item is a line of CJB master ball bearings. These are precision-made new bearings of the highest quality. They are made in standard single-row, angular-contact, double-row, and self-aligning types. They are interchangeable, type for type, with other well-known bearings.

The Airetool Manufacturing Co.
Springfield, Ohio
Booth 942
In attendance
W. T. HAMILTON L. D. BARNETT, Jr.

The Airetool Manufacturing Co. will exhibit a complete line of special self-feeding cutter-heads and superpowered motors for refinery use. The line consists of cleaners for all tubes from one-half inch to 12 inches, inside diameter.

The company will show its L-type single expanding cutter-head, the double expanding type, the UD type and the continuous type, all of which contain the self-

feeding feature. Of the older design heads the wing arm and forward swing arm types will be shown. These heads are designed to meet effectively all conditions of coke found, especially in pressure stills.

Included in the Airetool exhibit will be its new line of midget cleaners for small tubes, one of which is illustrated. Also for small tubes Airetool will show its geared motor for use where extreme conditions are found in heat-exchangers. This motor has a light aluminum case and contains an automatic lubricator. It also provides for water to be fed through the motor and shafting directly to the cutting edge of the drill.

A feature of the Airetool exhibit will be a working model of one of its superpower motors and self-feeding heads.

Ajax Well Tool Corp.
Houston, Tex.
Houston Oil Field Material Co. exhibit
Booths 152, 154, 156, 158, 160, 251, 253, 255, 257, 259, 261

Alexander Anderson, Inc.
Fullerton, Calif.
Booths 645, 647

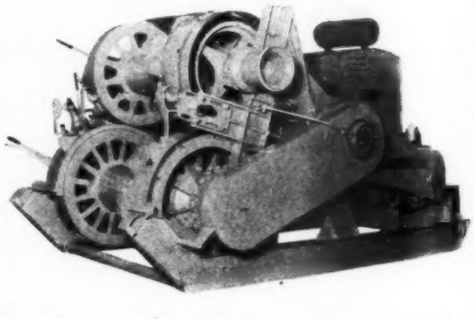
Alexander Bros.
Philadelphia, Pa.
Brance-Krachy Co. exhibit
Spaces 1122, 1124, 1223, 1225 outside

Allen, Sproull & Allen
Houston, Tex.
Booths 234, 236
In attendance
C. W. SPROULL J. H. ALLEN
E. G. LAGARDE

The Allsteel Products Manufacturing Co.
Space 1007 outside
In attendance
ARTHUR HARVEY J. M. CROWE
R. B. GILMOUR M. T. JORDAN
F. J. OLSON

The Allsteel Products Manufacturing Co., Wichita, Kans., will show its new unit, the Mobilhoist, to be in production this month. This unit is designed for servicing oil wells 2,000 feet to 4,000 feet in depth. Prime movers available include the Ford V-8, Buda K-428 and Waukesha MZU gasoline engines. Single- and double-drum models are available with or without spudding assembly, rotary-table drive attachment, or 44- to 55-foot telescoping mast. Special features are friction drum clutches of the internal expanding type, hydraulically operated; hydraulic and auxiliary manually operated brakes on drums; controls located to give the operator unobstructed view; road speed from 4 to 35 miles per hour.

The Cardwell Allsteel Model R double-drum drawworks, powered with Waukesha GAKU gasoline engine, shown in the accompanying illustration, is recommended for rotary drilling from 3,000 feet to 4,000 feet using 4½-inch drillpipe, dependent on size of prime mover



furnished. Spudding and beam assemblies are available or can be furnished for mounting in the field after purchase, if desired. With either of these assemblies this double-drum drawworks makes a combination rotary and cable-tool drilling unit, and conversion for use with either type of tools can be made in a short time.

The model R single-drum servicing unit is powered with a Hercules HXE gasoline engine, equipped with combination gas-natural gas fuel system. Both gasoline and diesel prime movers are available for servicing wells to 10,000 feet in depth. The unit can be furnished with fireproof accessories. Foot-operated hydraulic and manually operated mechanical brakes and hydraulically operated cone-type friction cone clutch are new features. Controls located in "driller's position" make this unit suitable for operation either while mounted on a truck or on the derrick floor.

Alten's Foundry & Machine Works
Lancaster, Ohio
Space 1309 Outside
In attendance
GEORGE H. ALTEN HENRY A. WINLAND
ADALBERT C. MUELLER

Alten's Foundry & Machine Works will exhibit its new-type flexible stuffing-box. This device is fitted with

a flexible coupling which allows the stuffing-box to give with the movement of the polished rod, thereby eliminating wear on both the polished rod and stuffing-box. The dustproof oil reservoir provides means for proper lubrication of the polished rod. The stuffing-box can be furnished with pumping tee as shown in the illustration, or with adaptor nipple.

The company will show also a complete line of stopcocks, both regular and lock pattern.

The roller-bearing D stirrup box for O.K. pumping jacks will be displayed. It is designed especially for sandy territories and on extremely heavy pulls. It is equipped with two sets of roller bearings, sealed at the ends with dustproof caps and Alemite lubrication.

American Bridge Co.

Pittsburgh, Pa.

United States Steel Corp. exhibit
Booths 264, 364, 365, 366, 465

American Chain & Cable Co., Inc.

Bridgeport, Conn.

Booths 727, 729, 731, 733
In attendance

Reading-Pratt & Cady Division

J. A. BYNUM — J. P. FERGUSON
J. J. REED

American Cable Division

C. A. PERRYMAN — R. D. McNUTT
E. L. KLINGLER — J. L. RAGAN
L. GLENN MOORE — S. W. COLLINS

Page Steel and Wire Division

E. J. FLOOD

Wright Manufacturing Division

C. B. VEIT — D. R. SMITH

Hazard Wire Rope Division

W. W. RUNKLE — H. S. BRADY
B. B. BURNS — J. R. McCREA

The Reading-Pratt & Cady division will have on display a complete line of valves used in the oil industry, including small bronze valves, bar stock steel valves, cast-iron valves, steel valves, and fittings.

The American Cable division will display wire rope used in the oil industry.

The Page Steel and Wire division will probably display sections of chain link fence as used for enclosure purposes around refineries, and welding wire.

The Wright Manufacturing division will display hoists.

The Hazard Wire Rope division will exhibit in booth 150, which is adjacent to one of its Gulf Coast distributors, the Houston Oil Field Material Co. It will exhibit samples of rotary and cable-tool drilling lines; bailing, coring and sand lines; rod and tubing lines and truck winch lines.

The American Chain division will have samples of various chains used in the oil fields.

American Engineering Co.

Philadelphia, Pa.

Spaces 1112, 1114-A outside

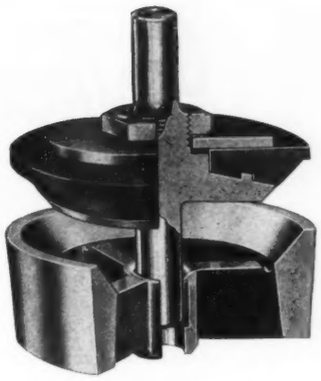
American Iron & Machine Works Co.

Oklahoma City and Houston

Booths 336, 338, 340
In attendance

EARL W. MILLER — EDDIE HERRING
JOHN R. RILEY — FRED RYALS
GEORGE S. HINKLE — S. F. LUZZI
P. K. RIDGE — LEE HEWITT
L. D. MURRAY — J. J. FITZPATRICK

Among the products on display by the American Iron & Machine Works Co. will be its slushpump valve and seat. The manufacturer describes it as being capable of eliminating difficulties usually experienced. Simplicity of design, finest materials specially adapted to their use, and precision workmanship are given as features which contribute much to the performance of the American slushpump valve. The cross members are undercut to prevent foreign substance from fouling the seat.



Other products manufactured by the American Iron & Machine Works Co. which will be on display are releasing and circulating overshots; wall-hook; milling-shoes; paraffin-bits; sucker-rod coupling and paraffin-scraper; pump release valves; pump manifold valve; expansion swivel joint; steam lubricator; float-joint; casing-suspenders; tubing-supports and slushpump rocker arms.

An interesting feature will be a miniature oil derrick with drawworks in actual operation. Both drilling and fishing equipment will be used in this demonstration. Products on display are in actual and miniature size models.

American Hammered Piston Ring Co.

Baltimore, Md.

Koppers Co. exhibit
Booths 500, 502

SEE our complete line of famous Wizard Pilot Operated Regulators, Pump Governors, Pressure Regulators and Liquid Level Controllers at the

HOUSTON OIL SHOW
IN BOOTHS NO.
516 - 518 - 520 - 621

FOR THE 1ST TIME we will exhibit our new FISHER Averaging Type, LIQUID LEVEL CONTROLLER PILOT VALVE — also our high temperature 1500 lb. Diaphragm Motor Control Valve and Non-Coking Valves.

Fisher Sales Engineers in Every Principal City

LIQUID LEVEL CONTROLLERS ★ PILOT OPERATED REGULATORS ★ GAS REGULATORS ★ PRESSURE REGULATORS ★ PUMP GOVERNORS ★ FLOAT VALVES ★ STEAM TRAPS ★ STRAINERS ★ REFINERY and OIL FIELD AUTOMATIC CONTROLS of SPECIAL DESIGN

FISHER — AUTOMATIC CONTROL

FISHER GOVERNOR COMPANY
201 SOUTH FIRST AVE., MARSHALLTOWN, IOWA

GARLOCK
CHEVRON
PACKING

Reduces Friction!

Like the knights of old, GARLOCK Chevron Packing is constantly waging war—*war against wear*—by reducing friction to a minimum. Chevron adjusts itself automatically. The hinge-like shape permits easy expansion and contraction with changing pressures. For rods or plungers operating against steam, air, gas, water, oils and other liquids. Genuine *Chevron* packing is made and sold only by *Garlock*.

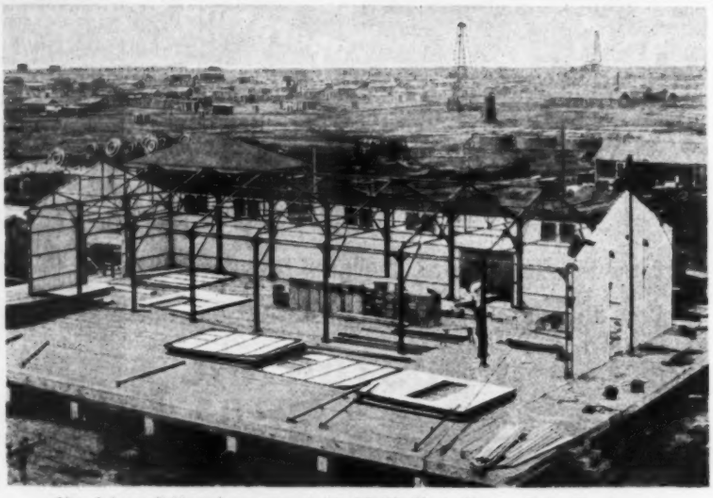
THE GARLOCK PACKING CO.
Palmyra, New York

Tulsa, Okla.
Houston, Texas
Los Angeles, Calif.

GARLOCK 430 CHEVRON for hydraulic service.
GARLOCK 431 CHEVRON for oils at low temperatures.
GARLOCK 530 CHEVRON for steam, air or gas.
GARLOCK 531 CHEVRON for hot oils.

HOUSTON OCTOBER 11-16-1937
SEE OUR EXHIBIT
OIL WORLD EXPOSITION

VISIT THE STEFCO Demonstration STEEL BUILDING at the OIL-WORLD EXPOSITION HOUSTON
SPACE NO. 1022 on Bagby Ave.



After 8 hours field work one span of this 60'x80'x12' double-span Stefco Warehouse is completely erected, except for roof sheets.

STEEL BUILDINGS

20 Years of Service to the OIL INDUSTRY

TODAY, 4,946 Stefco Buildings serve the oil industry. Only Stefco offers: Lowest cost, Permanence with portability, Interchangeable sections, Easy expansion and alterations, 85% prefabrication for quick erection with unskilled labor, Fire and lightning safety, Maximum light and ventilation, Speedy delivery and year after year service. Before you build . . . . GET STEFCO FACTS!

LARGEST EXCLUSIVE MANUFACTURERS OF PREFABRICATED STEEL BUILDINGS

Representatives:
TULSA
L. L. Dresser, Hunt Bldg.
SHREVEPORT
R. M. Spurlock
ST. LOUIS
W. E. Engel, Commercial Bldg.
CHICAGO
W. P. Behen, McCormick Bldg.
NEW YORK
R. W. Bartlett, 50 Church St.

STEFCO STEEL COMPANY
MANUFACTURERS OF
GENERAL OFFICES AND WORKS — MICHIGAN CITY, INDIANA U.S.A.
STEFCO READY-BUILT STEEL BUILDINGS

American Instrument Co., Inc.

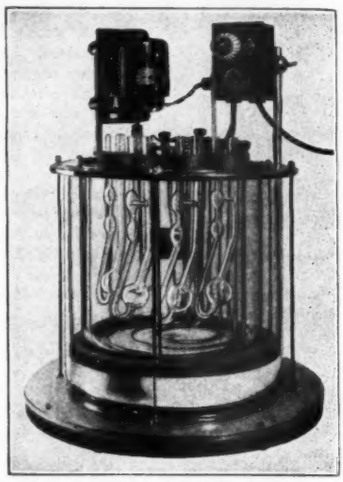
Washington, D. C.

Booth 249

In attendance

D. M. GREER

The American Instrument Co. will display Aminco oil-testing devices, including the new capillary viscometer bath, Reid vapor bomb bath, and others as part of the Industrial-Scientific Instrument Co. exhibit. An



engineer from the American Instrument Co. will be at the booth to discuss technical problems with any who are interested in the construction of new instruments or apparatus.

American-LaFrance and Foamite Industries, Inc.

Elmira, N. Y.

Booths 744, 746

In attendance

D. D. FITZGERALD

The American-LaFrance and Foamite Industries, Inc., will have on display a complete line of fire-extinguishing equipment, including many new items of particular interest to the oil man.

The Foamite powder bin valve and agitator assembly is for use on dual powder storage-bins in connection with dual powder foam producing generators. While the company is prepared to offer the complete powder storage-bin, ranging in capacities from 3,000 to 15,000 pounds and arranged for either stationary or trolley mounting, the Foamite valve and agitator mechanism is arranged so that, if desired, it may be purchased separately and attached by the purchaser to his own bins. This novel device allows one person to put into operation three or four dual powder generators by merely spinning the valve on each bin, which starts the A and B foam-producing powder flowing into the respective hoppers of the generators.

An allied device to be on exhibit is the Foamite applicator type D. The purpose of the applicator, which is listed as a type 3 foam delivery device in the 1936 regulations for foam fire-extinguishing systems of the National Board of Fire Underwriters, is to facilitate introduction of a foam stream into a burning vertical or horizontal tank which is not equipped with permanently installed foam chambers. The type D is suitable for use with foam generators up to 4,500 g.p.m. capacity of either the single or dual powder type.

American Manufacturing Co.

St. Louis, Mo.

Norvell-Wilder Supply Co. exhibit

Booths 104, 106, 108, 110, 112, 114, 116, 120, 205, 207, 209, 211, 213, 217, 219, 221

American Optical Co.

Southbridge, Mass.

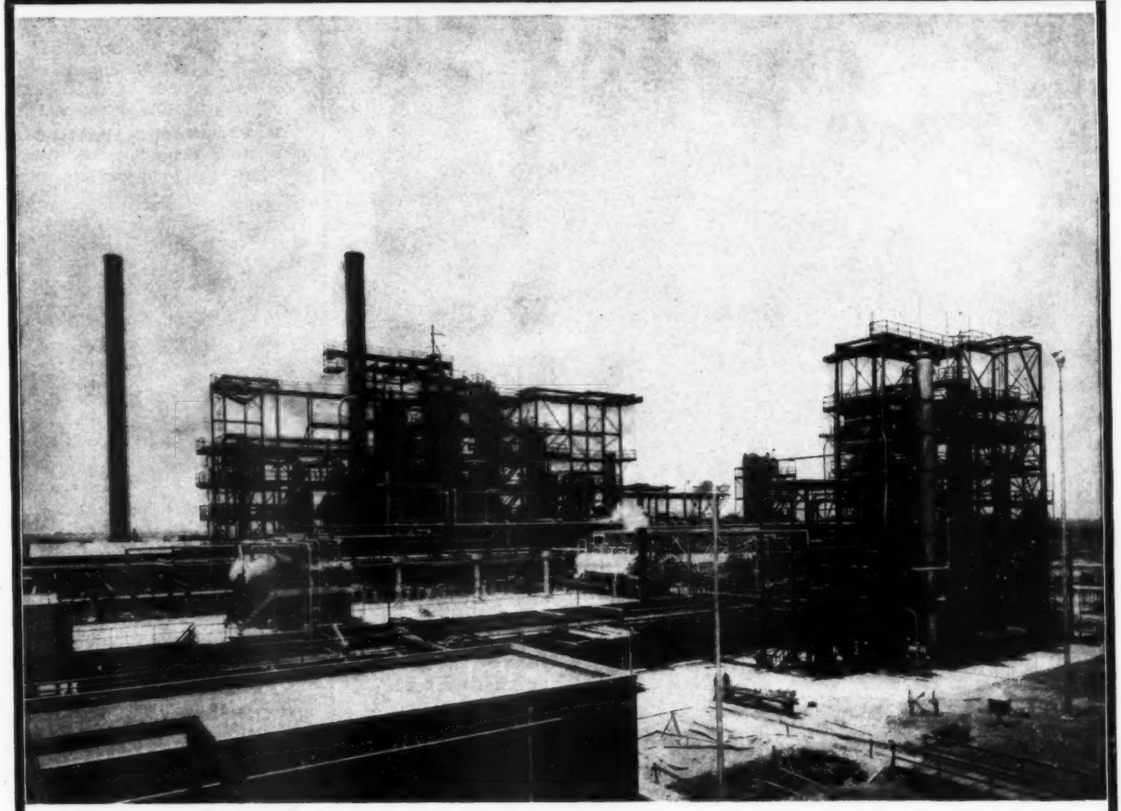
Booth 517

In attendance

R. A. COX — C. H. GALLAWAY
T. A. WALSH — B. M. FINKENBERGER

Industrial eye protection and protection of eyes from the glare of the sun will be emphasized in the American Optical Co.'s display. The company has had

Quality Products are Produced Profitably In Kellogg-Built Units



KELLOGG design provides that flexibility of operation which permits the refiner to vary the proportion of finished products to meet day to day marketing demands. Such units can only be designed and constructed by an organization with a specialized knowledge of every phase of refinery technique.

THE M. W. KELLOGG COMPANY · JERSEY CITY, NEW JERSEY · 225 BROADWAY, NEW YORK

Los Angeles · 1031 South Broadway · Tulsa · Philtower Building · EUROPEAN REPRESENTATIVE: Compagnie Technique des Petroles, 134 Boulevard Haussmann, Paris, France

KELLOGG

LICENSING AND CONSTRUCTION AGENTS under United States and Foreign Patents for: Gasoline Products Company, Inc. · Cross · Holmes-Manley-de Florez Tube and Tank Combination Cracking Units ••• The Polymerization Process Corporation · Gas Polymerization Units ••• The Gray Processes Corporation · Clay Treating ••• Standard Oil Company (New Jersey) · Standard Oil Company (Indiana) · Union Oil Company of California · Lube oil refining with Propane and Phenol ••• Deasphalting · Dewaxing · Solvent Extraction and Acid Treating Plants

SUPERIOR

Engine protection

with VORTOX TRIPLE ACTION CLEANING★

THERE are more Vortox Cleaners in use than any other self washing type because the day in and day out performance records of cleaners ON THE JOB have proved them definitely superior. Vortox Cleaners remove all types of dust from the heaviest to the lightest particles . . . . and there is nothing in these cleaners to wear out—no chance of their becoming choked with dust if properly serviced. An oil change and removal of the dirt at regular intervals is the only maintenance required!

HOUSTON OCTOBER 11-16-1937 SEE OUR EXHIBIT OIL WORLD EXPOSITION

★Vortox Triple Action Air Cleaning
1st: Heavy particles are thrown out by centrifugal action of whirling air column.
2nd: Fine particles are removed by scrubbing action of whirling oil spray.
3rd: Air is given a final cleaning through an oil-washed filter that passes it into the engine free of dirt and oil.

In every Vortox Cleaner you get the PLUS value of efficient intake silencing at no extra cost. Give your engines the complete protection afforded by Vortox!

VORTOX MANUFACTURING CO., CLAREMONT, CALIF.

VORTOX OIL TYPE SELF-WASHING AIR CLEANER

more than a hundred years' experience in the manufacture of products to aid and preserve vision. It is estimated that a goggle which saves an eye pays for itself one thousand times over. Because eyes are the most vulnerable and the most expensive targets which workers present to industrial hazards, the American Optical Co. has developed a complete line of goggles, which will be shown in the exhibit.

The new Polaroid sun glasses will be featured. Using the light-controlling and glare-removing properties of a new material called "Polaroid," these glasses remove glare from water, sand, snow, ice, highways and other reflecting surfaces.

American Meter Co.
Erie, Pa.
Westcott & Greis, Inc., exhibit
Booths 728, 730

American Roller Bearing Co.
Pittsburgh, Pa.
Booth 151
In attendance
C. F. SUCCOP C. L. KNAAK
EDWARD D. MALTBY

The American Roller Bearing Co. will exhibit a complete line of heavy-duty roller bearings designed and developed specifically for heavy-duty oil field service.

American roller bearings are extensively used in crown-blocks, traveling-blocks, drawworks, winches, swivels, and various other types of drilling and pumping equipment.

American Sand-Banum Co., Inc.
Booth 232
In attendance
L. BRADIE F. J. WELU
P. P. ELLIOTT A. J. MAXWELL

The American Sand-Banum Co., Inc., 9 Rockefeller Plaza, New York, will exhibit Sand-Banum Standard, a pure colloidal concentration which is said to eliminate all formation of scale and corrosion in boilers. It does not contain any acid or caustic material and is harmless to all equipment and to persons applying it. It comes ready for use in 16-ounce cans, and a few ounces from one to four times per month is all that is required.

Sand-Banum's action is mechanical rather than chemical. It holds all water impurities in suspension and thus prevents their crystallizing into scale. Its simplicity, safety and certainty are of particular value in the oil industry as it gives the same service regardless of the operating conditions or the nature of the water used.

Sand-Banum Blue Seal Emulsion does the same for the cooling systems of internal-combustion engines that the Standard does for boilers. Not only does its use eliminate and prevent scale, corrosion and rust, but it prevents cracking of cylinder-heads, leaks and overheating. Proper circulation of water, efficient heat-transfer and increased lubricating efficiency are said to be assured with the use of this product. Copies of "How and Why" will be available at the booth.

American Steel & Wire Co.
Chicago, Ill.
United States Steel Corp. exhibit
Booths 264, 364, 365, 366, 465

Appleton Electric Co.
Chicago, Ill.
Booths 736, 738

The Arrow-Hart & Hegeman Electric Co.
Hartford, Conn.
Booth 14
In attendance
WAYNE SNOOTS SELWYN W. SHARBROUGH

The Arrow-Hart & Hegeman Electric Co. will exhibit a line of explosion-proof housings for motor control apparatus and push-button stations, approved for Class 1, Group D location. Under manual motor starters, there is available durable line of switches without fuse or overload protection.

These housings are cast and regularly equipped with half-inch hubs. The switches have bakelite arc snuffers which reduces the arc and increases the breaking capacity. There is a kick-off release which mechanically starts the switch blades in motion and removes the possibility of sticking. Extra heavy switch blades and contact jaws increase current carrying capacity.

Secondary circuit-breakers are made for fractional horsepower motors in an explosion-proof housing similar to the manually operated switches. These circuit-breakers are permanently assembled in a bakelite case with a sealed-in thermal element.

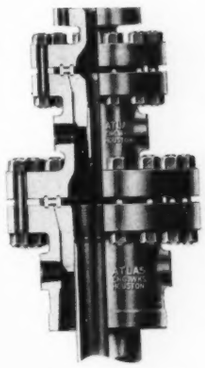
Resetting thermal switches, manually operated, are available in type RT for motors up to 7½ horsepower either 2 or 3 poles for single phase or 3 and 2 phase. For smaller motors up to 2 horsepower type RT-2 is recommended. These switches require separate heaters which are selected according to the full load motor current of each motor.

The No. 1 size 25-ampere magnetic starters are made with two styles of explosion-proof housings. These controls are suitable for motors up to 7½ horsepower, 2, 3 or 4 poles, 110-550 volts A.C. No. 2 size magnetic starters, 60-ampere capacity, have a similar housing and in addition a square housing style No. 1, which in some localities is more suitable as it provides ample wiring through the large round cover. Magnetic contactors combination starters are supplied in explosion-proof housings of the same capacity.

Explosion-proof momentary-contact push-button stations are available for standard start-stop operation. The hubs are regularly provided for three-quarter inch pipe and a raised button-guard prevents accidental operation.

Atlas Engineering Works
Houston, Tex.
Booths 424, 525, 527

The Atlas Engineering Works will feature a new departure in casing- and tubing-heads. By means of an ingeniously designed steel seal ring, all manner of fibrous packing has been eliminated in these head assemblies. The head is declared to be particularly appropriate in high-pressure use, where heat is encountered which ordinarily would destroy packing.



The manner in which this head has been accepted by operators throughout the Gulf Coast has caused the manufacturers to provide the seal-ring feature in individual tubing- and bradenheads in addition to the combination series. Flange dimensions conform to A. P.I. specifications throughout.

Atlas representatives will explain the principal features of this and other items including christmas trees

They've Got What It Takes!

Kropp Flanges possess a lot more than "skin deep beauty." While they have a smooth well-tooled outside finish, on the inside "they've got what it takes" to withstand high pressures, corrosion, strain and impact for years on end!

Special analysis steel formulated for use in the petroleum industry is hammered endwise to secure a complete upsetting of the grain structure which provides greatest possible working stress resistance. Proper forging insures a perfect union between hub and flange. Bolt holes are jig-drilled on a multiple spindle drill, assuring exact alignment of all holes in the bolt hole circle. Holes are spot-faced or back-faced to assure even seating of nuts and bolts. Threaded type flanges have clean-cut threads. Slip-On and Welding Neck flanges have a smooth, true bore.

Several hundred thousand Kropp Forged Steel Flanges are carried in stock at all times for immediate shipment, including Threaded, Slip-On, Van Stone and Welding Neck Companion Flanges and Boiler Flanges, Spuds, and Blind Flanges in 150 lb., 300 lb., 400 lb., and 600 lb. American Standard. Write today for Kropp Stock Flange List No. 125.

KROPP FORGE COMPANY
5309 W. Roosevelt Road, Chicago, Illinois

Sales offices in Tulsa, Dallas, Houston, Pittsburgh and New York.
Representatives at Birmingham, Cincinnati, Cleveland, Denver, Detroit, Indianapolis, Milwaukee, San Francisco, St. Louis and St. Paul.

THE RIGHT PACKING in the Right Place!

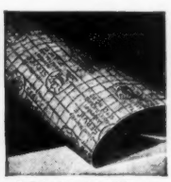
J-M Sea Rings. Absolutely automatic. Save power. Reduce wear on equipment. Last longer.

J-M Kearsarge Rod Packing. Retains its efficiency—note construction of center block.

J-M Centripac. Plaited construction. Specially designed for centrifugal service.

J-M Flax Packings available in various styles to meet a wide variety of service conditions.

J-M Kearsarge Boiler Gaskets assure a perfect seal on handholes, manholes and tube plates.



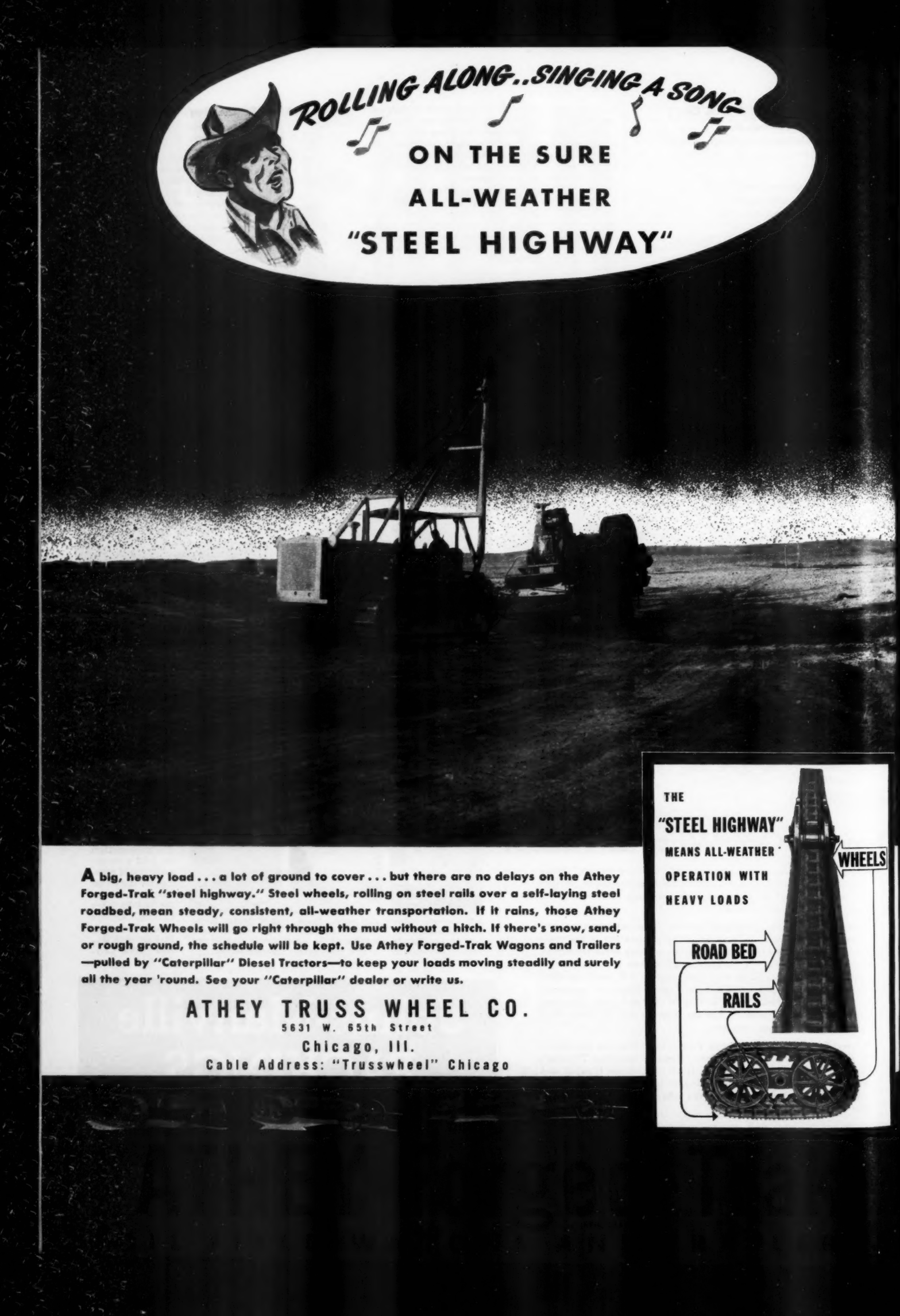
J-M Service Sheet. Pliable. Resilient. Adaptable to all general sheet packing purposes.

J-M Mogul Packing. An excellent utility packing for general service.

FOR *complete* information on J-M's *complete* line of packings for the oil industry, send for the J-M Packings Catalog. Address Johns-Manville, 22 East 40th St., New York City.

Johns-Manville PACKINGS

For Every Oil Industry Service


ROLLING ALONG..SINGING A SONG
ON THE SURE
ALL-WEATHER
"STEEL HIGHWAY"
THE
"STEEL HIGHWAY"
MEANS ALL-WEATHER
OPERATION WITH
HEAVY LOADS
WHEELS
ROAD BED
RAILS
A big, heavy load . . . a lot of ground to cover . . . but there are no delays on the Athey Forged-Trak "steel highway." Steel wheels, rolling on steel rails over a self-laying steel roadbed, mean steady, consistent, all-weather transportation. If it rains, those Athey Forged-Trak Wheels will go right through the mud without a hitch. If there's snow, sand, or rough ground, the schedule will be kept. Use Athey Forged-Trak Wagons and Trailers —pulled by "Caterpillar" Diesel Tractors—to keep your loads moving steadily and surely all the year 'round. See your "Caterpillar" dealer or write us.
ATHEY TRUSS WHEEL CO.
5631 W. 65th Street
Chicago, Ill.
Cable Address: "Trusswheel" Chicago

of advanced design, high-pressure fittings, conventional type tubing- and bradenheads, positive and adjustable chokes and other items which have proven popular among oil field users.

Axelson Manufacturing Co.
Los Angeles, Calif.
Frick-Reid Supply Corp. exhibit
Booths 350, 352, 354, 356, 451, 453, 455, 457
In attendance
J. C. AXELSON D. M. HAMMETT
E. W. BRANT

Ayres Engineering Co.
Houston, Tex.
Booths 409, 411

Baash-Ross Tool Co.
Huntington Park, Calif.
Booths 120, 221. Spaces 1037, 1038 outside
Norvell-Wilder Supply Co. exhibit
In attendance
L. F. BAASH H. C. ROSS
A. F. BROWN W. E. BENDLER
H. J. CRAIG

Although they have had a wide sale for months the Baash-Ross Tool Co. will formally introduce its new self-aligning rotary slips at the oil show in Houston.

The slips will be displayed in booths 120 and 221 of the Norvell-Wilder section, and the other items in the Baash-Ross line of drilling. Fishing and production tools, will be shown in space 1037 and 1038 inside.

According to L. F. Baash, president of the company, the new rotary slips embody a new principle which enables them to compensate for wear irregularities and distortion of the master bushing and to align with the pipe automatically in all positions. The liners of these slips are provided with a gripping surface of new design which maintains a positive grip on the pipe without cutting, swedging or otherwise injuring it.

Including in the general display will be many new and standard Baash-Ross tools. The automatic torque controlled rotary jar, releasing rotary spear and releasing rotary socket, casing-cutter, drillpipe-cutter, Star wheel perforator and long-knife perforator will be shown. Among other production tools the display will include the Baash-Ross open-end tubing-spider and non-sparking oil-saver.

Baldwin-Duckworth Chain Corp.
Springfield, Mass.
Booths 314, 316
In attendance
GEORGE J. FIX, Sr. F. J. WESCHLER
HERMANN KLAUCKE E. L. PARSONS
GEORGE D. GILBERT T. H. LANKFORD
GEORGE J. FIX, Jr. J. N. MARTIN
J. H. TURNER

The Baldwin-Duckworth Chain Corp.'s exhibit will include:

Super-depth rotary chain, displayed for the first time, a new development in chain design, brought out

ATTENTION HOUSTON OIL SHOW VISITORS

You can see NEW IDEAL PIPE CLEANERS and PIPE STRAIGHTENERS in Houston at the following places:

BETHLEHEM SUPPLY CORP.
TEXAS PIPE & SUPPLY CO.
STANDARD OIL FIELD SUPPLY CO.
HOUSTON PIPE & SUPPLY CO.

New Ideal Pipe Cleaning and Pipe Straightening Machines are in use all along the Gulf Coast from New Orleans to Corpus Christi.

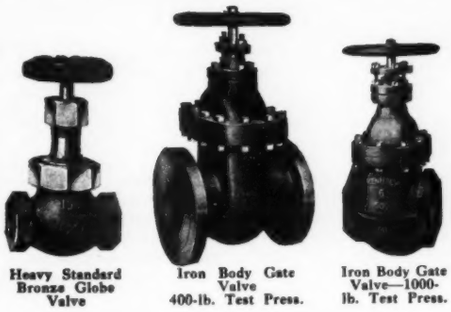
KNOWN AROUND THE WORLD

The NEW DEAL SPECIALTY CO.
—INC.—
OKMULGEE. OKLA., U.S.A.
EXPORT: LUCEY EXPORT CORPORATION
3505 Woolworth Bldg., New York, N. Y. Broad Street House, London, E. C. 2, England

KENNEDY....

for dependable valve service

with oil, gas, steam or water



Heavy Standard Bronze Globe Valve

Iron Body Gate Valve 400-lb. Test Press.

Iron Body Gate Valve—1000-lb. Test Press.

Iron Body Gate Valve 700-lb. Test Press.

Iron Body Gate Valve 1600-lb. Test Press.

KENNEDY Valves open and close easily and remain tight indefinitely. Their bodies and bonnets are sturdily proportioned, stems are of specially tough, strong metal, operating mechanisms are simple and positive, and stuffing boxes are generous and have high grade molded packing. You can always depend on Kennedy Valves to serve long and efficiently.

Obtainable from your supply house.

The Kennedy Valve Mfg. Co.
Elmira, N. Y.

particularly for extra-heavy service and carrying an exceptionally high ultimate strength rating.

Super-service chain, of standard straight side-bar construction, but equipped with the new patented solid cotter retaining-pin. The manufacturers say this pin gives all the advantages of the riveted type chain, with none of the disadvantages of the detachable type.

Full flex chain, of offset side-bar construction and designed to handle all rotary chain requirements for nominal depth wells.

Roller chain, of all types, consisting of single, double, triple and quadruple width, both in standard and heavy.

A full line of cut-tooth sprockets in single, double, triple and quadruple widths. Their use in the oil fields is constantly increasing.

Baldwin patented full flexible chain coupling, the patented feature of which covers the double chain, which is equipped with straight rollers in one strand and convex rollers in the other. The manufacturer says this coupling is designed without destructive back lash and yet flexible in every way. The coupling is said to be capable of operating with as much as 3 degrees angular misalignment without harm to the coupling. Also displayed is a full line of standard double-chain flexible couplings.

Barco Manufacturing Co.

Chicago, Ill.

M. N. Dannenbaum Co. exhibit

Booths 516, 518, 520, 621

In attendance

M. N. DANNENBAUM

The Barco Manufacturing Co. will exhibit Barco flexible ball joints, recommended for all pipe lines where flexibility is required to take care of expansion, contraction or vibration. These are used extensively in pipe connections to and from flush-pumps and for connections to the steam-supply boilers, as well as for loading- and unloading-racks, etc. These joints are supplied with two separate seats, one on either side of the ball, insuring tightness under either suction or pressure, and they are made for all pressures and temperatures encountered.

Amazing strength of

WILLIAMS
SUPERIOR DROP-FORGED TOOLS
"SUPERECTOR"

proved by test!

Actual, unretouched photograph which dramatically illustrates the amazing strength of Williams' "Superector". 15 men, weighing a total of 2,052 pounds, are easily supported from the extreme end of a 53" "Superector".

With more than 50 years' experience to guide them, Williams' engineers set out to design a heavy-duty ratchet wrench *powerful* enough for severest service and *strong* enough to safely withstand the generous leverages provided. The "Superector" incorporates many innovations in ratchet wrench design and construction. Quadruple pawls and drop-forged handle are just two "Superector" features which account for its sensational strength and comparative lightness.

The "Superector" has been subjected to exhaustive tests which thoroughly demonstrate its unusual strength. Competitive tests with other quality wrenches leads us to believe that Williams' "Superector" is the strongest wrench of its type today.

The "Superector" is available in 5 sizes—24" to 53" for both hex and square sockets. The socket holes extend clear through permitting rotation of nut on any length of bolt. Put the "Superector" to work on your tough jobs and you will find it not only cuts tool replacement costs and speeds up work but will definitely reduce accident hazards.

"Superector" FEATURES

- Quadruple Pawls
- Drop-Forged Handle
- 20 Gear Teeth on All Sockets
- Rotates Nuts with only 18° Handle Swing
- Instantly Reversible
- Takes *both* Hex and Square Sockets

J. H. WILLIAMS & CO., *75 Spring St., New York*

Headquarters for: Drop-Forged Wrenches (Carbon and Alloy), Detachable Socket Wrenches, "C" Clamps, Lathe Dogs, Tool Holders, Eye Bolts, Hoist Hooks, Thumb Nuts and Screws, Chain Pipe Tongs and Vises, Etc.

WESTERN WAREHOUSE & SALES OFFICE: CHICAGO.
WORKS: BUFFALO, N. Y.

Williams "SUPERECTOR" Wrenches

Baker Oil Tools, Inc.

Huntington, Park, Calif.

Booths 100, 103

In attendance

C. E. BURT — W. A. AVIS
W. E. ROUTT — W. H. GRIFFIN
C. E. WHITNEY

Baker Oil Tools, Inc., will have on display models of the Baker cementing equipment for guiding, floating and cementing casing, which are well known for their strength, valve efficiency and drillability. Also the Baker Whirler cementing collar with the new metal petal basket, which differs from the canvas basket as it is made from a number of brass vanes so designed that they collapse evenly against the casing as the basket is being run. As each vane or petal contacts its mating petal perfectly, the effect is a smooth, open basket, both inside and out.

This basket is generally used in conjunction when cementing through perforations, and is placed below the perforations through which the cement is to pass, thus preventing the cement from being forced into formation below the cementing point.

The Baker portable hydraulic kelly and pipe straightener will be on display. This device makes it possible to straighten a kelly or pipe hanging on the traveling-block in a vertical position through the rotary table and eliminates the necessity of taking the kelly or the pipe to the shop for straightening. The kelly and pipe straightener can be used in the horizontal position as well as the vertical, and attachments can be had to facilitate the work when used in this manner.

The new Baker Bakwik drillpipe float will be on exhibition. The float assemblies are of the slip type, have no threads, and can be easily dropped into place and removed without the assistance of special tools or wrenches.

A full size cutaway model of the Baker cement retainer, showing the construction and practicability of this tool will be exhibited, as will the Baker rotary hydraulic expansion wall-scraper and wall sampler, together with a new washdown casing-shoe.

Barrett-Cravens Co.

Chicago, Ill.

Spaces 1112, 1114-A outside

Barber-Greene Co.

Aurora, Ill.

Space 1018 outside

In attendance

E. H. COOPER — H. A. BARBER
W. B. GREENE

The Barber-Greene Co. will show two of the latest B-G ditchers. The two smaller ditchers of the Barber-Greene line will be displayed, namely the model 54

B-G model 54 utility ditcher

utility special, with the offset vertical boom, and the model 64-B small-size ditcher. Both are said to have features which make them particularly suitable for

fast, economical ditching in the oil fields, on cross-country and gathering line work.

Baroid Sales Department

National Pigments & Chemical Division of National Lead Co.

Los Angeles, Calif.

Booths 325, 327, 329

In attendance

H. H. FARNHAM — D. A. SIKES
R. W. WILSON — J. W. O'BRIEN
GEORGE BLOXSOM — F. E. PALMER
MORGAN DALY — GEORGE MOORE
B. D. GRESHAM — GEORGE L. RATCLIFFE

Baroid Sales Department will exhibit products distributed by the company as follows:

Baroid.—Specially processed, pulverized barytes, used as a weighting material in drilling fluid to control gas, oil, or water pressures and to assist in holding caving formations in place.

Aquagel.—Concentrated, gel-forming colloidal drilling clay. Can be mixed alone with water to form a light drilling mud, or added to native clay in small percentages. It builds a thin, impermeable cake on the walls of the hole and minimizes the amount of water which passes into the formation, reducing the tendency of a formation to cave.

Baroco.—An economical salt-water-resisting drilling clay. This product was developed to resist the flocculation action of electrolytes encountered in drilling salt domes and in anhydrite and gypsum formations.

Stabilite.—An improved chemical mud-thinner furnished in liquid or powder form. Used to reduce viscosity, free gas and improve wall-building qualities of drilling muds.

Fibrotex.—A fibrous material, furnished in two lengths of fiber, specially compounded for the treatment of wells in which loss of circulation occurs.

Mud-testing equipment.—A complete line of apparatus used in evaluating drilling mud, such as Stormer and Funnel viscosimeters, hydrometers, pH testers, elutriation apparatus, screens, stop-watches and mud-performance testers for determining cake thickness and water losses of muds.

The headquarters office and main research laboratory of Baroid Sales Department are in Los Angeles. Sales offices and laboratories also are maintained in Houston and Tulsa. Through warehouse distributors stocks are kept in the active oil fields of the United States. Sales and service engineers also cover these fields. They are supplied with cars specially equipped with laboratory apparatus suitable for making tests of drilling mud at the well. Baroid's exhibit will include a model of laboratory equipment used to evaluate drilling muds.

Bartlett Hayward Division of Koppers Co.

Baltimore, Md.

Booths 500, 502

Beard & Stone Electric Co., Inc.

Houston, Tex.

Booths 13, 155, 157, 700

In attendance

W. C. JONES — JIMMIE WYATT
LEON SMITH — MR. KROMMES
MR. LEONARD

The exhibit of the Beard & Stone Electric Co. will be in cooperation with companies which it represents in Texas, namely, United American Bosch Corp., Briggs & Stratton Corp., Delco Appliance Corp., Scintilla Magneto Co. and Wico Electric Co. These companies will have on display:

Bosch.—A full line of diesel injectors and late-type Bosch magnetos.

Briggs & Stratton.—Fractional horsepower engines generally used on small equipment.

Delco-Lite.—A complete line of 32- and 110-volt plants. These will be in both AC and DC and will range in size from 800 up to 6,000 watts.

Scintilla.—The regular magneto line of this company.

Wico.—Complete line of oil-field and industrial magnetos.

Beaumont Iron Works Co.

Beaumont, Tex.

Frick-Reid Supply Corp. exhibit

Booths 350, 352, 354, 356, 451, 453, 455, 457

Beaver Pipe Tools, Inc.

Warren, Ohio

Booth 754

In attendance

C. W. SMITH — HARRIS CARLOCK

The center of attraction in the exhibit of Beaver Pipe Tools, Inc., will be the model A Beaver portable pipe machine for cutting and threading one-eighth- to 2-inch pipe and also bolts, but with facilities for operating geared threaders for cutting and threading up to and including 12-inch sizes. The full Beaver line of tools will be shown in addition.

Christian Becker, Inc.

New York, N. Y.

Booths 344, 346

Benjamin Electric Manufacturing Co.

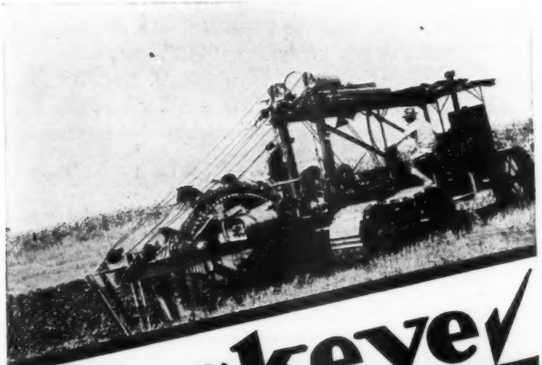
Des Plaines, Ill.

Booths 224, 226

The Benjamin Electric Manufacturing Co. will demonstrate the latest developments in the floodlighting of service station buildings and grounds and in the lighting of various service areas.

Of special interest will be the Benjamin Duo-Service unit, equipped with the new Saflox lowering device which makes it possible to lower the floodlight to the ground and carry on a weekly cleaning and maintenance schedule.

Another unit of special interest is the Benjamin Column-Lite, especially designed for high-level illumination of the pump islands and surrounding service areas. Other units on display will be explosion-proof fixtures and Vapolets for damp locations.



Buckeye

. . . DIGS the DITCH

Buckeye Ditchers are used on pipe line work the world over because the men who build pipe lines know that they can depend upon Buckeye Ditchers to get the job done - on time - and at the lowest year around cost. Experience proves it.

THE Buckeye Traction Ditcher Co.
FINDLAY, OHIO

BID THE Buckeye WAY • ask for our operation data before you bid

You Have Heard About It
NOW COME AND SEE IT!

There is a message of importance waiting for you at Booth 232 during the Oil-World Exposition. For years we have been telling and selling the Oil Industry on the merits of Sand-Banum. Even though you may not be one of the many enthusiastic users you, no doubt, have heard of it. And, perhaps, wondered if it could accomplish the same perfect results in your plant.

SAND BANUM

"The Entirely Different Boiler and Engine Treatment"

—will eliminate scale and corrosion problems from your plant, regardless of the operating conditions or the nature of the water used. Sand-Banum is a pure colloidal concentrate that *comes ready for use* in 16 ounce cans. A FEW OUNCES from one to four times per month is all that is required. Scale or corrosion cannot form or remain in its presence as it holds all water impurities in suspension. It contains no acids or caustic material and is *absolutely harmless* to all equipment and persons applying it. Sand-Banum is the SAFE . . . SANE . . . and SURE way of increasing your efficiency and economy.

HOUSTON OCTOBER 11-16-1937
SEE OUR EXHIBIT
OIL WORLD EXPOSITION
BOOTH 232

Stop in and get an interesting copy of "HOW and WHY". Talk it over. Then let us prove it to you on our "Satisfaction or No Money" guarantee in your own plant.

AMERICAN SAND-BANUM CO., Inc.
9 Rockefeller Plaza — New York City

Stocks carried by
WESTERN SAND-BANUM COMPANY
HOUSTON, TEXAS — FRESNO, CALIF.
and at other convenient points including leading supply houses

Bethlehem Steel Co.

Booths 548, 550, 552, 554, 556

The Bethlehem Steel Co., Bethlehem, Pa., will exhibit various types of line pipe and casing, with test specimens from crush tests and welds; sucker-rods; a complete line of bolts, studs and nuts, plain and alloyed; high-pressure screws for return-bends; stainless-steel thermo-wells; derrick- and tank-bolts, plain and galvanized; tooljoint forgings and pump-liners, roller-bit type, full-hole; alloy steels in as-rolled, cold-drawn, ground, polished, and planished form; Bethanized strand fence, nails and other wire products; galvanized sheets and roofing; tin plate and terne plate for oil cans and containers. Transparencies on forging and pipe manufacture and murals depicting operations in the production of alloy steel will be prominently displayed.

Big Three Welding Equipment Co.

Houston, Tex.

Booths 735, 737, 739

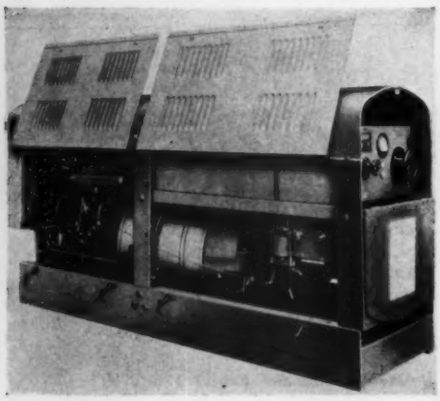
In attendance

B. K. SMITH — BERT DENNEY
A. HERZSTEIN — A. E. MATHY
FRED STEVENS — ROY HOLT

The Big Three Welding Equipment Co. will display products of the Lincoln Electric Co., Cleveland, Ohio. Three styles of electric welding machines will be shown, one a gas-engine-driven, 300-ampere electric arc welder, one a 300-ampere electric-driven Lincoln electric arc welder, and one a 150-ampere electric-driven Lincoln arc welder.

Actual electric welding on oil-field drilling bits will be featured, with a protective booth to surround the welder, this booth having colored glass inserted so that visitors can see the welding as it progresses without injury to eyes or from flying sparks. This demonstration is designed to show how material cost can be reduced by the use of the electric shield arc.

Visitors will receive a plate of mild steel one-quarter inch by 3 inches by 9 inches in size, with holes drilled in each end, and the names of visitors will be welded onto the blank piece of steel. This will give visitors a souvenir to carry home and they can utilize it as an attractive name plate.



Samples from welds in all classes of metals will be exhibited. Sample welds of oil-well casing, both butt-welded and bell-and-spigot welded, will be on display.

Exhibiting with the Big Three will be the Osage Metal Co., the Smithweld Co., Corpus Christi Oxygen Co., Houston Oxygen Co., and the Victor Equipment Co. These concerns will feature items of welding closely related to those shown by the Big Three.

The Billings & Spencer Co.

Hartford, Conn.

Oster Manufacturing Co. exhibit

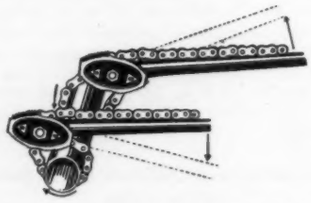
Booth 714

In attendance

W. ROY MOORE — H. S. GARDNER
L. M. GARDNER

The Billings & Spencer Co. will have on display such well known tools and wrenches for the oil fields as the Red Head reversible chain pipe-tongs; the Gardnerench and the improved chain pipe-vise. There will also be an animated display with the Gardnerench as the feature. Surrounding the booth will be display boards showing Billings commercial drop-forging for the aircraft industry, carbon wrenches of all descriptions and a display board of Billings alloy tools.

The Red Head double-action reversible chain pipe-tong, shown in the illustration, is well known in the oil fields because of its strength and these features: The operator can quickly reverse the direction of the pipe without removing the tong; the reversible feature



gives longer life to the jaws because they too can be reversed after teeth on one side have become ineffectual after hard usage; it has the "fittings jaw," available by removing outer jaws, enabling the operator to work on narrow beads of fittings. The single bolt and nut for holding the jaws can be quickly replaced from local jobbers stocks because they are U. S. standard.

The Billings improved chain pipe-vise, to be demonstrated, has an elongated and knurled nut which provides firm finger gripping surface for more rapidly taking up the slack in the chain. There is a stop-ring (patent pending) which prevents the knurled nut from becoming disengaged and lost, yet the knurled nut can be removed for replacement. The nonslip ball handle is a feature which oil men appreciate.

Black, Sivalls & Bryson, Inc.

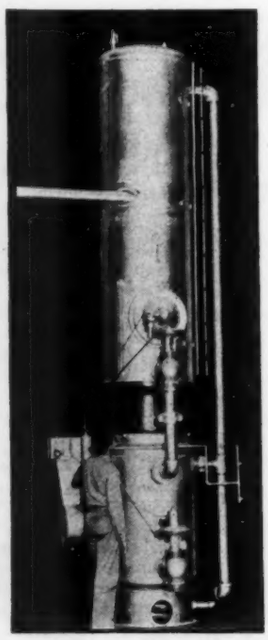
Oklahoma City, Okla.

Booths 450, 452, 454, 456

In attendance

A. J. EDWARDS — G. RAYMOND
G. E. PEOPLES — R. E. STEVENS
G. C. PARMLEE — J. E. BYERS
H. K. IHRIG

Black, Sivalls & Bryson, Inc., will feature a full-size BS&B oil and gas separator and a full-size BS&B metering separator in full operation with pilot-controlled BS&B oil valve equipment. It will exhibit also an extra high-pressure separator—the 3,000-pound working pressure strictly A.P.I.-A.S.M.E. code separator. This separator will be shown partly fabricated in order that visitors may see and examine the unusual thickness of the shell and head material of this extremely high working pressure separator.



The equipment shown will be as follows: A BS&B 500-pound working pressure separator, a BS&B 125-pound working pressure metering separator, a BS&B 125-pound working pressure automatic blow case, the new BS&B tubular heater, the new BS&B 3,000-pound working pressure separator (partly fabricated), the BS&B pilot-controlled and automatic chemical feeders, BS&B safety heads, pilot-controlled oil valves, the new BS&B oil-sampler, tank-thief valve, BS&B "safwalk" material.

Blaw-Knox Co.

Pittsburgh, Pa.

Frick-Reid Supply Corp. exhibit

Booths 350, 352, 354, 356, 451, 453, 455, 457

J. E. Bobo

Houston, Tex.

Booths 533, 535

Brance-Krachy Co.

Houston, Tex.

Spaces 1122, 1124, 1223, 1224 outside

Broderick & Bascom Rope Co.

St. Louis, Mo.

Booth 428

Continental Supply Co. exhibit

Brown-Hovis, Inc.

Houston, Tex.

Spaces 1104, 1106 outside

The Brown Instrument Co.

Philadelphia, Pa.

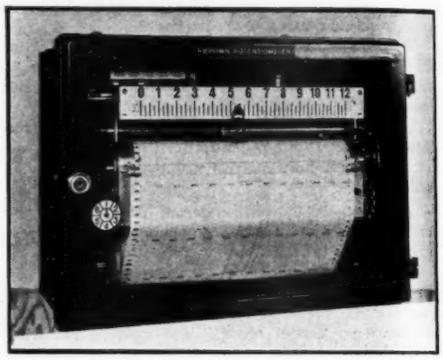
Booth 734

In attendance

L. MORTON MORLEY

H. M. SCHMITT — F. M. POOLE
R. L. MALLORY — G. S. YOUNKIN
R. P. WALKER — O. B. WILSON

Several entirely new refining process control instruments will be demonstrated by the Brown Instrument



Co., a division of the Minneapolis-Honeywell Regulator Co. These instruments—indicating, recording, controlling—will be in actual operation. They include the following:

Brown pneumatic control transmission system. Temperature, pressure, flow and liquid-level measurements may be indicated, recorded and controlled remotely from the point of measurement by this new pneumatic telemetering system. Particularly applicable to hazardous locations where the use of electricity is to be avoided.

Brown pneumatic interlock control system. A system wherein one medium may be controlled in response to variations in another. The control index of a flow controller, for example, may be positioned automatically from a liquid-level recorder.

Brown air-operated controller with safety cutoff switch. The switch may be set to give a signal or alarm, or to stop and start motors, etc., when a predetermined value on the chart is reached. The switch has a capacity of 10 amperes at 110 volts.

Brown multiple recording and controlling numeral printing potentiometer. Where it is desirable to record several temperatures on one chart this instrument will not only record, but it will also control from two to six temperatures from as many different thermocouples. There are three other features said by the company to be exclusive: (1) The chart-drum is made of steel with vulcanized rubber cover, as used on typewriters. (2) The printing recorder use specially hardened steel print wheel with machine-cut numerals. Both of these features assure maximum legibility of chart records. (3) The + sign is used for recording temperatures. It has special significance, namely, the vertical line of the + sign identifies the temperature and the horizontal line is the time coordinate.

In addition to the foregoing new instruments, the following standard Brown instruments, featuring such improvements as simplified design and additional ruggedness of construction, will be in operation: Brown Air-O-Line control system, coordinated temperatures, pressures, flows and liquid levels; Brown flow meters, electrical, mechanical and area; Brown resistance thermometers, for measuring, indicating, recording and controlling temperatures; Brown manually balanced potentiometer, an indicating manually balanced potentiometer in a large switch cabinet for supervisory temperature measurements.

Liquid Power for 50,000,000 MOTORS

It was only yesterday that gasoline was a drug store item. Today, Oil Refineries must produce enough "liquid power" to supply more than fifty million motors. And here again the famous Layne Pumps and Deep Well Water Systems are depended upon for billions of gallons of water each day. Throughout the entire Oil Industry, the name Layne stands paramount for long life, economical operation and low upkeep expense. The Layne reputation for high hydrological engineering skill does not end at America's shores. In every oil producing foreign country it is the most universally used of all water supply equipment.

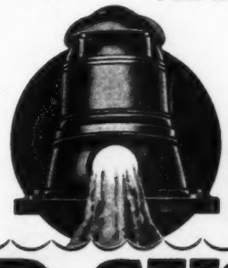
Producing water in quantity is a task in which Layne & Bowler, Inc., and their many Affiliated Companies are thoroughly competent. The quality of Layne equipment is the standard by which all others are compared. For illustrated literature, write,

LAYNE & BOWLER, INC.
Dept. O., Memphis, Tenn.

Listed below are the names and locations of some of our affiliated companies who understand the geological formation of your territory. They are completely equipped with all modern well drilling and pump installation facilities.

AFFILIATED COMPANIES

LAYNE-ARKANSAS CO. . STUTTGART, ARK.
LAYNE-ATLANTIC CO. . . . NORFOLK, VA.
LAYNE-CENTRAL CO. . . MEMPHIS, TENN.
LAYNE-NORTHERN CO. . MISHAWAKA, IND.
LAYNE-LOUISIANA CO. LAKE CHARLES, LA.
LAYNE-NEW YORK CO. . NEW YORK CITY.
LAYNE-NORTHWEST CO. MILWAUKEE, WIS.
LAYNE-OHIO CO. . . . COLUMBUS, OHIO.
LAYNE-TEXAS CO. . . . HOUSTON, TEXAS.
LAYNE-WESTERN CO., KANSAS CITY, MO. CHICAGO, ILL. MINNEAPOLIS, MINN. AND OMAHA . . . . . NEBRASKA.
LAYNE-BOWLER NEW ENGLAND COMPANY. BOSTON . . . . . MASSACHUSETTS.
INTERNATIONAL WATER SUPPLY, LTD., FORT ERIE, N. . . . . ONTARIO, CANADA.



LAYNE PUMPS
WELL WATER SYSTEMS

Brown Oil Tool Co.

Houston, Tex.

Spaces 1104, 1106 outside

Browning-Ferris Machinery Co.

Dallas, Tex.

Spaces 1024, 1025, 1026, 1027 outside

In attendance

G. M. DEANE — J. W. CHUMLEY
H. L. BURLESON

Representing International Harvester Co.

WALTER WEATHERS — E. A. MORRIS
GARY GILLIS — R. L. ADAMS
A. D. HOWARD — A. P. REITZ

Factory representatives

C. E. McLAIN — V. MANDT
I. KUNERT — J. E. MORTON
H. M. JAMESON — FRED SULTAN

The International Harvester Co. will have in the Browning-Ferris Machine Co. exhibit its latest-type trucks, completely equipped with the necessary items for oil-field use, as well as some smaller units for the commercial field. As representative of International on industrial tractors Browning-Ferris will have a complete line of International power units and International tractors, both gas and diesel. It will have in addition to its regular International line, a display of concrete mixers, pumps, draglines, side-boom tractors for pipe line work, Ingersoll-Rand air-compressors and Galion graders and maintainers.

Buckeye Traction Ditcher Co.

Findlay, Ohio

Space 1035 outside

In attendance

W. H. SCHOMBERG — G. C. SWARTZ
E. W. CURRY — A. O. THOMAS

The Buckeye Traction Ditcher Co.'s model 49 ditching machine and model 50 Clipper dragline, both new machines, will be shown for the first time. The model 12 ditching machine will also be exhibited.

Buffalo Pumps, Inc.

Buffalo, N. Y.

Booths 100, 102, 201

Builders Iron Foundry

Providence, R. I.

Booth 932

(See Proportioneers, Inc.)

E. D. Bullard Co.

San Francisco, Calif.

Booth 638

Bull-Stewart Equipment Co.

Dallas, Tex.

Space 1022-B outside

Byron Jackson Co.

Los Angeles, Calif.

Booths 649, 651, 653, 655, 657

Pump Division

In attendance

LYNN SAWYER — PETE BAKER
J. J. (JOE) PROGRESS — J. J. O'CONNOR

The new Byron Jackson submersible and the hot-oil charging and hydropress pumps will be exhibited by the pump division of the Byron Jackson Co., Los Angeles, Calif. The unique submersible consists of a direct-connected, close-coupled, vertical electric motor and pump, the motor being enclosed in a steel housing and completely submerged in the fluid being pumped. The centrifugal, or deepwell type pump is mounted above the motor. By eliminating the long shaft from pump to a surface driver, the difficulties of misalignment and excessive bearing wear are avoided; power costs are materially reduced; higher efficiencies are secured; and since the motor-case is filled with high dielectric oil and cooled by the fluid being pumped, long life and trouble-free operation are assured. As the use of the polymerization process increases, the double-case hot-oil charging pump is expected to be in growing demand. A 10-stage pump will be exhibited.

The Byron Jackson hydropress now extensively used in refinery service, is increasing in favor for water-flooding or repressuring service.

Oil Tool Division

In attendance

C. F. (BUD) VINCENT — R. T. (BOB) TODD
MARSHALL MOORE — GARTH NICHOLSON
BUSTER STUART — FRANK CHAMPION
H. E. GRAU

The complete line of BJ drilling and production tools will be displayed by the Oil Tool division, with full-size tools, models and demonstrations. These will include the triplex hook, in three sizes; tubing and rod-hooks; slip casing elevator, with side-door feature; the Sure-stop and the Shortype C tubing-catchers; the rugged type A center-latch elevator, with fully heat-treated body, and many other tools for average depth drilling, and for the deepest test wells.

Cameron Iron Works, Inc.

Houston, Tex.

Booths 604, 705

In attendance

E. L. LOREHN — L. D. HILTON
A. V. BLAND — W. P. (Red) KNIGHT
J. M. (Red) TEAGUE — HARLEY GUEDRY
O. V. PARKER — PAUL T. PUTNAM

The Cameron Iron Works will exhibit the following Cameron products: (1) Pressure-operated blowout-preventers, 3,000-pound and 6,000-pound test. (2) Pressure-operated gate valves, 3,000-pound and 6,000-pound test. (3) Drilling control hookups. (4) Manually operated blowout-preventers, double-screw model, 3,000-pound, 6,000-pound and 10,000-pound test. (5) Manually operated blowout-preventers, single-screw model, 6,000-pound and 10,000-pound test. (6) Resilient seal gate valves, 8,000-pound test. (7) Safety christmas trees, several types. (8) "Old Ocean" types, long-string bradenhead.

FOR ALL DEEP WELL DRILLING
These deep well drilling plants of the latest design offer enormous advantages over the chains and sprockets formerly used. No foundations are required for the machines, and the derrick can be shifted without having to dismount the draw works and drilling aggregate.
DEMAG ROTARY PLANTS

Agents for U. S. A.: Seamless Steel Corporation, New York, Broadway 39

(9) Rotary core barrels. (10) Master control tubing-heads. (11) Resetting tubing plugs. (12) Wire-line core-barrel blowout-preventer. (13) Expansion tube flow choke.

Carlyle Rubber Co., Inc.

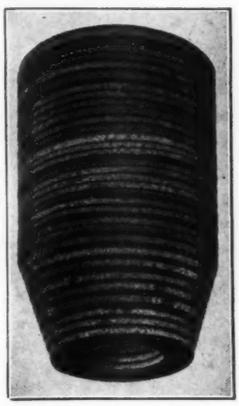
New York, N. Y.

Space 1118 outside

In attendance

PAUL M. KAMINSKY A. J. KAMINSKY

The Carlyle Rubber Co. will feature Carlyle rathole formation-tester packer elements, used on rathole for-



mation testers. Formerly replacement packer elements for these tools had to be made by field men or in field shops from belting and similar material, a rough and tedious operation, which caused frequent delays, unsatisfactory jobs and improper seating at the rathole.

Carlyle cone-shaped rubber and fabric rathole formation-tester packer elements are made in various sizes and shapes, and are offered in three different styles.

Made to fit all makes of rathole formation-testers, these elements are manufactured with precision tools to insure accurate tapers for positive rathole seating. The element is constructed of properly vulcanized rubber and fabric discs (similar to rubber belting) and are finished to a smooth cone shape. This smooth cone shape allows the formation-testing tool to be centered properly at the rathole, and the packer element provides a tight proper seat.

A straight center hole (to size required) is maintained from the top of the packer element to the bottom.

Carnegie-Illinois Steel Corp.

Chicago, Ill.

United States Steel Corp. exhibit

Booths 264, 364, 365, 366, 465

Caterpillar Tractor Co.

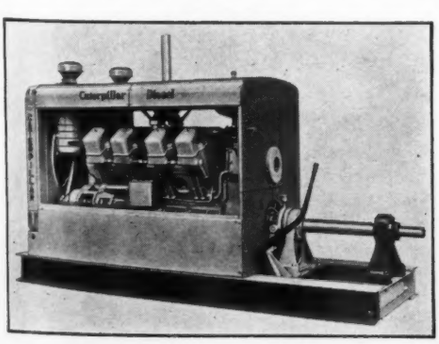
Peoria, Ill.

Spaces 1040-A, 1041-A

In attendance

GEORGE FENN NEWT BARNES

The Caterpillar Tractor Co. will display six of its engines: One D17000, V-8, 160-horsepower diesel power



unit; two D13000, six-cylinder, 125-horsepower diesel power units, one equipped with oil-field skid; two D8800, four-cylinder, 80-horsepower engines, one in power unit arrangement, and the other direct-connected to a 40-KW electric generator; and one D4400, four-cylinder, 44-horsepower diesel power unit.

The larger sizes of engines are heavy-duty, medium high-speed diesels, turning at 850 r.p.m. The D4400 engine is high speed, turning at 1,400 r.p.m. Not displayed are the D7700, four-cylinder, 66-horsepower engine, and the D6600, three-cylinder, 60-horsepower engine.

"Caterpillar" diesel engines, track-type tractors and road machinery have a wide variety of uses in the oil fields. Although none of the company's tractors will be on display, these machines will be seen in conjunction with equipment manufacturers' displays at the show.

Chain Belt Co.

Milwaukee, Wis.

Booths 513, 515

In attendance

MR. SNAVELY MR. PITTS
MR. JEWETT MR. WELSER
MR. ABELT MR. DAVIS

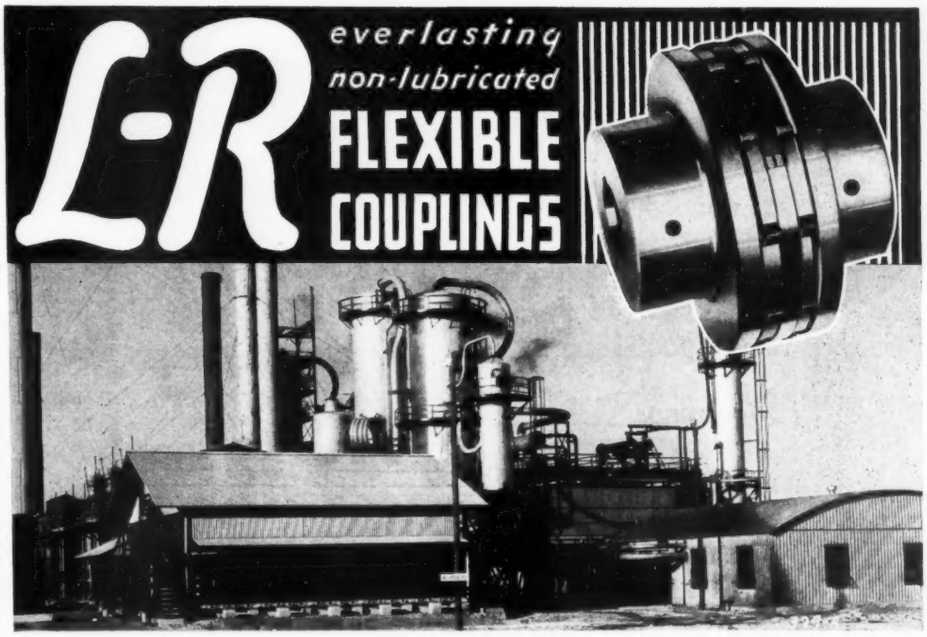
The Chain Belt Co.'s exhibit will consist of samples and pictures of various styles and sizes of chain and sprockets manufactured for oil-field use. Included are two new models.

Rex Champion No. 3 and Rex Champion No. 4 correspond to the A.P.I. 3 and A.P.I. 4 sizes. Champion chain is made with the same alloy steels, highly finished bearing surfaces and precision that are found in the Rex Deepwell chain. It is a heavier chain with a higher ultimate strength, and is recommended for extremely hard and deep drilling where excessive loads in the final stages of the deepest holes are the main factors. The side bars on the Rex Champion No. 4 are accurately forged from alloy steel. Rex Champion No. 3 has an ultimate strength of 75,000 pounds, and the No. 4 an ultimate strength of 170,000 pounds.

The other new chain is Rex Universal No. 3125, made in single or double strands for high-speed drilling. This chain also is made with the same precision and polished bearing surfaces which mark Rex oil-field chains. Its ultimate strengths are 115,000 pounds for the single-strand, and 230,000 pounds for the double-strand. This chain does not run on the same sprockets as A.P.I. 3 and A.P.I. 4 chains.

Also shown will be Rex Standard Chabelco 1033 and 1244 chains, recommended for drilling that is somewhat

L-R everlasting non-lubricated FLEXIBLE COUPLINGS



Service Free-Trouble Free

THE OIL INDUSTRY FREED FROM COUPLING CARES

All the power that's in the shafts of your prime movers you want transmitted to your pumps and machines — the *power* and *nothing else*. To avoid transmission of shock you must avoid metal-to-metal transmission of power. So use L-R Flexible Couplings "across the line". They're kind to bearings and machine parts. You get smoother operation for a longer time, with considerably less actual depreciation on the equipment — with couplings that don't want any "Nursing"! That's true of *all* L-R Flexible Couplings, in all types and sizes, up to 14″ bore. NO TEARING DOWN OF COUPLING TO REMOVE CONNECTED MACHINES. NO TIE-UP OF EQUIPMENT!

Write for engineering data and name of nearest distributor.

(Pictured above)

L-R TYPE "W"

This type made in sizes from 1¾″ to 14″ bore. Note the free floating load cushions hung between steel jaws, with steel retaining band. These cushions always are in plain sight, and can be changed quickly without tearing down the coupling. They are *inter*changeable because half of them are idlers except on reversing loads. *Less* changes — *quicker* changes — maximum shock absorption!

NO METAL-TO-METAL TRANSMISSION OF POWER

•

Load cushions quickly changed without tearing down coupling.

LOVEJOY FLEXIBLE COUPLING CO.
5036 WEST LAKE ST. CHICAGO, ILLINOIS
OFFICES IN PRINCIPAL CITIES

easier and for shallow holes. All parts are accurately made, but do not have the ground and finished surfaces of the other Rex oil-field chains. Rex Deepwell in A.P.I. 3 and 4 sizes is the chain for the wider working range in all types of drilling. The various sizes of Rex Roller chain used in the oil fields will be shown.

The Chaplin-Fulton Manufacturing Co.
Pittsburgh, Pa.
Westcott & Greis, Inc., exhibit
Booths 728, 730

The Champion Rivet Co.
Cleveland, Ohio
Booths 934, 936, 938
In attendance
T. J. KEGG

The Champion Rivet Co. will have two display boards enclosed in glass, one showing both the hot and cold pressed rivets of its manufacture, together with various upset forgings. The other board shows samples of welds made with various types of the company's electrodes, Champion "Red Devil," "Gray Devil" and "Blue Devil."

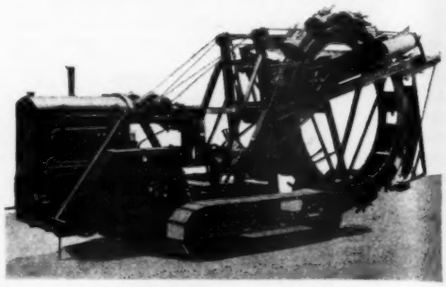
Chase Brass & Copper Co.
Waterbury, Conn.
Standard Brass & Manufacturing Co. exhibit
Booths 634, 636

Cleveland Trencher Co.
Cleveland, Ohio
Space 1020 outside
In attendance
VINCENT S. PENOTE J. R. OVERS
H. Q. HOLLMANN J. A. PENOTE

Machines displayed by the Cleveland Trencher Co. will be its latest models, Cleveland 110 and Cleveland 125, and the Cleveland trailer for speedy transportation of the machines.

The Cleveland Trencher Co. has been manufacturing ditching machines for 16 years. A multiplicity of digging and traction speeds in combination with different wheel speeds are instantly available to the operator by shifting a lever. Digging speeds range from 1½ inch to 33 feet per minute. Top road speed is 3 m.p.h. Machines already in the field have averaged from 500 feet to 1,000 feet per hour for the duration of the job.

Power is furnished by a 320 cubic inch gasoline engine developing 38.5 horsepower at 1,000 r.p.m. Other features are differential brake steering; unit-type con-



struction; steel enclosed, dirt-sealed drives; quick-shift arc-type conveyor; close-up view of the digging action from operator's platform; use of over 90 antifriction bearings.

Advanced digging-wheel construction greatly improves performance when digging sticky material. Ground bearing pressure is only 5.5 pounds per square inch; with auxiliary 16-inch cleats, 4.3 pounds per square inch. Easily installed equipment simplifies pipe-stripping for reconditioning or replacement. As it weighs less than 6 tons and can be furnished with a pneumatic-tired trailer, the Cleveland model 110 possesses the advantages of mobility and transportability. This feature was introduced to the industry by the Cleveland Trencher Co. several years ago, and makes machine digging profits available on even short scattered loops and lease lines, "hot spot" reconditioning work, etc.

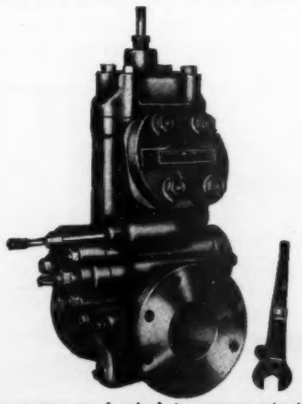
Complete information and specifications on this quality-built machine will gladly be furnished upon request.

Climax Engineering Co.
Clinton, Iowa
Booth 435
Continental Supply Co. exhibit

Coast Oil Fields Specialties Co.
Los Angeles, Calif.
W-K-M Co. exhibit
Booths 504, 506, 508, 510, 605, 607, 609, 611
Space 1002 outside

Commercial Iron Works
Maintenance Engineering Corp. exhibit
Booths 608, 610, 612, 709, 711, 713

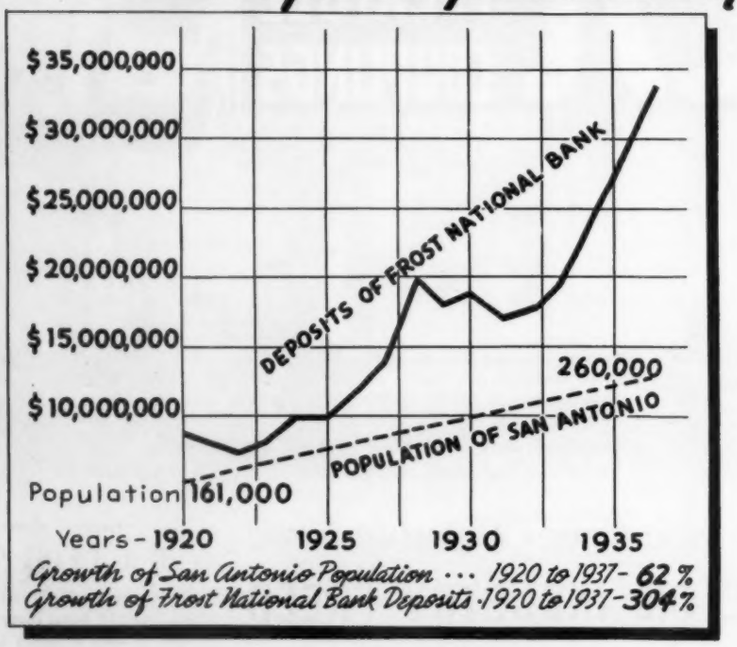
Among the several different types of orifice fittings displayed by the Commercial Iron Works, of Los Angeles, Calif., will be the type "CN." This fitting em-



bodies numerous mechanical improvements to insure speed and ease of operation. The best of corrosion resisting materials have been used in all internal parts exposed to the fluid. This design utilizes the nonrising stem multiple-thread elevator and lubricant-sealed valve. The lubricant-sealed valve is operated by means of stainless-steel reduction gears, insuring ease of operation.

The body is made in one piece, eliminating joints

A Growing Bank in a Growing Community



Growth of San Antonio Population ... 1920 to 1937 - 62%
Growth of Frost National Bank Deposits 1920 to 1937 - 304%

● We have always believed that the way to grow is by helping our customers to grow. The above chart evidences our adherence to this belief. All of the natural resources of the southwest are represented on the directorate of the Frost National Bank. This has made it possible for us to understand the problems and requirements of the men who are interested in the development and marketing of such resources and has enabled us to render intelligent and satisfactory banking service.

Two of our directors are actively engaged in the oil business which enables us to consider from a practical standpoint such matters as may be presented to us by members of the Oil Industry. We invite those requiring a banking connection in this territory to use the services and facilities of this bank.

Total Resources Over $35,000,000

FROST NATIONAL BANK
SAN ANTONIO
SAFETY·COURTESY·PROMPTNESS
MEMBER FEDERAL DEPOSIT INSURANCE CORP.

KINZBACH

Whipstock and Milling Tool Makes Sidetracking easy and certain

Patented

KINZBACH MILL
ASSURES A CLEAN CONSISTENT WINDOW

Spiral setting of Milling Tool blades gives a uniform depth of cut, thereby minimizing danger of drill-pipe twist-off. Proper heat treating of the high speed tool steel blades permits grinding that provides the smoothest, most efficient cutting action. Kinzbach milling tools readily cut the new alloy casing and pipe. They pay for themselves in the round trips they save. The regular round nose type, illustrated, plus numerous other types, always in stock . . . or special mills for specific requirements are furnished.

The Kinzbach Whipstock can be set at any desired depth, requiring no support from bottom. Hinged feature assures reclining against pipe wall. By setting in a coupling, the window is always within one casing joint, eliminating any chance of milling through a coupling and parting casing string. Positive setting of slips prevents turning or downward movement. Can be oriented in hole to mill out in any desired direction. Removable from hole, if desired. Made of alloy steels. The design assures a full, clean window, leaving no obstructions for follow-up drilling. Write for full details.

5 REASONS WHY OPERATORS PREFER THE KINZBACH WHIPSTOCK-MILLING TOOL COMBINATION

1. Mill out at any desired point in the casing, in any direction, without using an anchor other than that built into the unit.
2. Secure a good, clean window of sufficient length to eliminate difficulty in subsequent drilling operations.
3. Mill out without fear or danger of the whipstock shifting in the hole.
4. Mill out between couplings, eliminating all danger of parting the string.
5. Mill out of any grade, weight, or size of casing.

HOUSTON OCTOBER 11-16-1937
SEE OUR EXHIBIT
OIL WORLD EXPOSITION

KINZBACH WHIPSTOCK
ASSURES A MILL-OUT BETWEEN COUPLINGS

Patented

[redacted]

and gaskets at vital points. Complete accessibility of parts is provided without removing fitting from line. All parts in the flow bore and upper chamber can be removed from the fitting with the line under pressure, if necessary.

The company will also have on display its regular orifice fitting with the rising-stem elevator, and the twin plate orifice fitting which contains two orifice plates, together with the Deadline orifice fitting.

Coen Co., Inc.
San Francisco, Calif.
Booth 411

Columbia Steel Co.
San Francisco, Calif.
United States Steel Corp. exhibit
Booths 264, 364, 365, 366, 465

Colox Sales & Service
Houston, Tex.
(Division of George S. Mepham Corp.)
Booths 415, 417
In attendance
J. A. COULSON — E. F. BROWNHILL
JACK WINTERS — R. E. BIERING
W. P. LESTER

Colox Sales & Service will exhibit its complete line of drilling muds and chemicals, including Colox, Jelox, Suspendo, Chemical Z, and Meptol.

In this display will be available information on the advantages and applications of each of these Colox products, and the engineering service first inaugurated several years ago for the aid of operating companies.

Conco Engineering Co.
Mendota, Ill.
Spaces 1112, 1114-A outside

Continental Diamond Fibre Co.
Newark, Del.
Spaces 1112, 1114-A outside

The Continental Supply Co.
Dallas, Tex.
Booths 328, 330, 332, 334, 428, 429, 430, 431, 433, 435
In attendance
W. J. MORRIS — F. M. MAYER
F. I. BRINEGAR — C. H. MEYER
N. A. ENDICOTT — H. E. SPENCER
A. J. OLSON — J. C. SLONNEGER
CHAS. W. KING — C. N. SWANSON
E. N. WOOD — F. H. THRAILKILL

Under the auspices of the Continental Supply Co., a wide assortment of drilling and production equipment produced by affiliated manufacturing companies will be shown.

Occupying a chain of booths on Aisles 2 and 3 of the Exposition Hall, individual booths will quarter the exhibits of associated manufacturing companies as follows:

Gardner-Denver Co.
Booth 429
In attendance
E. F. SCHAEFER — R. J. BAUER
R. J. McFARLAND

Affording visitors an apportunity to view a modern design in steam drilling engines, the recently announced 9½x8 Gardner-Denver vertical model will be on display. The engine is equipped with a manually adjustable cutoff, easily set to meet load requirements. Steam valves are of the inside admission piston-valve type—light, perfectly balanced and easy to reverse. Valves in this engine are tight under high pressures and with superheated steam, while the steam cylinders are insulated with mineral wool covered with sheet rock.

Exceptionally compact and economical, this unit is particularly desirable for driving a slush pump by means of V-belts, flat belts or chain drive, and is also adaptable for driving the rotary table directly.

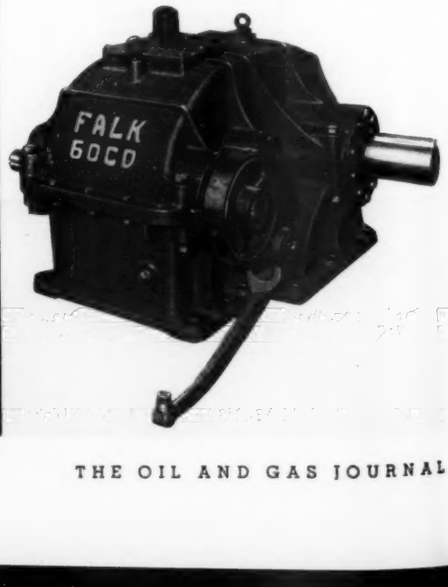
Fairbanks, Morse & Co.
Booth 431
In attendance
H. J. RENKEN — F. G. GRUTZNER
HAROLD GOBBLE — F. D. RATCLIFFE

Fairbanks, Morse & Co. will exhibit a three-cylinder, two-cycle, 6x6½ model 34 vertical engine. Especially designed for pumping service, the essential moving parts of this engine are identical with those of a proved design in long industrial use.

Outstanding features include heavy pistons for dissipating heat; heavy crankshafts, perfectly counterbalanced; heavy flywheels to provide unusually smooth operation. Design of the governor permits variation of the degree of sensitivity, a highly desirable quality in oilfield service. Of especial note is freedom from vibration.

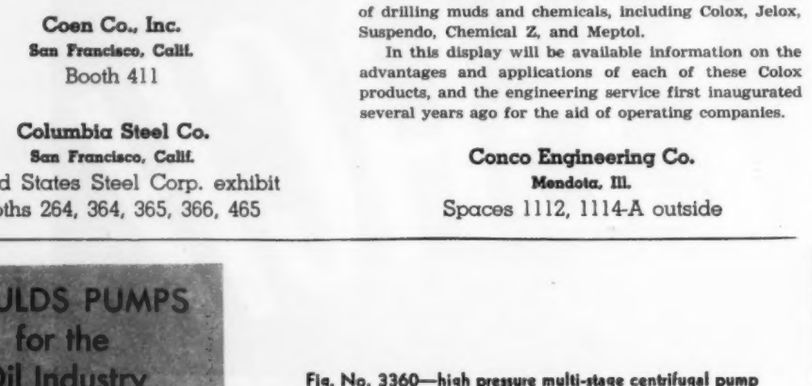
Falk Corp.
Booth 433
In attendance
E. P. CONNELL — M. A. CARPENTER
W. P. SCHMITTER — T. F. SCANNELL
J. D. BRANCE — W. L. SCHNEIDER

The Falk Corp. will exhibit the Falk 60-CD gear



GOULDS PUMPS for the Oil Industry and all its Branches

Fig. No. 3360—high pressure multi-stage centrifugal pump built especially for oil pipe line or refinery service.



Refinery
Pipe Line
Gathering
Production
Bulk Stations
Natural Gas
Absorption Plants

RELIABLE, LOW-COST PUMPING SERVICE

No oil pumping service—on gathering or trunk lines—or in the refinery—is too severe and difficult for Goulds Pumps.

Goulds outstanding performance records in the oil field are made by giving day in and day out service under the most exacting operating conditions—with lowered maintenance and operating costs. Prominent pipe line operators specify Goulds Pumps.

Wide acceptance and unequalled Goulds performance reflect the importance of over ninety years' engineering experience in improving the pump designs, materials and workmanship which are built into every Goulds Pump. This is your guarantee of unfailing, low cost Goulds Pump service.

Many types and sizes, suitable to meet every requirement for pumping oil, its by-products and associated liquids, are available. Range of sizes provide capacities and heads for any installation. Write for further information about Goulds Pumps and their application to the oil industry.

GOULDS PUMPS Inc.
SENECA FALLS N. Y.
ATLANTA BOSTON CHICAGO HOUSTON NEW YORK PHILADELPHIA PITTSBURGH TULSA Representatives in all Principal Cities

7040

unit, representing a line of double reduction units. Symmetrically designed and of sturdy construction, this unit is also equipped with double low-speed bearings on both sides. It is adaptable for single or twin-crank portable pumping equipment, or either back cranking or service sprocket.

Herringbone-type gears in this unit were pioneered by Falk, cut on special machines designed and used exclusively by Falk. Double-end high- and low-speed shafts afford especial advantage, permitting assembly of the brake or pulley on either side of the high-speed shaft. The Falk trough system of lubrication insures an unfailing supply of clean lubricant to all bearings. Special oil-retainers prevent any leakage of oil and seal the lubricant against admission of dirt and dust particles. Ratio of the Falk 60-CD unit is 29.8:1, with a peak torque capacity of 100,000 inch pound at 20 s.p.m.

Climax Engineering Co.

Booth 435

In attendance

E. D. WEST T. L. KEELING

The Climax Engineering Co. will show the model N4B four-cylinder Climax "Blue Streak" engine. Bore and stroke of this engine are 5¾x6½, with valve-in-head design open-box base type for natural gas operation. An extra-heavy flywheel makes this engine especially desirable for oil-field pumping service. Its water-cooled exhaust manifold, vapor-proof ignition, safety devices, oil-filter and oilbath-type air-cleaner are a few outstanding features.

Emsco Derrick & Equipment Co.

Booth 334

In attendance

W. B. SOUNITZA P. D. BROWNE
S. W. WEBSTER W. B. DAVIDSON
G. W. WALTON

Attracting the attention of visitors in the Exposition hall will be the Emsco Derrick and Equipment Co.'s newly designed type J-20½ rotary machine. This is a small-opening machine (20½ inches) permitting the load-bearing to be reduced in diameter, thereby affording higher rotating speeds, together with increased load rating. Positive prevention of oil leakage from the machine or the intrusion of mud and water are permanent safeguards. Easy adjustment of the hold-down and load-bearing is provided, while the base is of welded steel construction to permit low overall weight. With the pinion-shaft equipped with 8KF bearings, the load-bearings are a high-capacity roller type while the hold-down bearings utilize the ball design. The Emsco 7¾x16 slushpump will be shown.

D & B Pump & Supply Co.

Booth 332

In attendance

E. E. STEVENSON L. C. SCOTT

A general line of pumping equipment, including both surface and subsurface accessories, together with sucker-rods and pullrods, will be exhibited by the D & B Pump & Supply Co. Produced from the highest-grade alloy steel and manufactured under the strictest precision standards dictated by the A.P.I. each D & B part is interchangeable, while the pump as a whole is well known for its excellent service record in the field.

Youngstown Sheet & Tube Co.

Booths 328, 330

In attendance

W. E. WATSON E. P. COREY
J. C. SIEGLE MYRON S. CURTIS

The Youngstown Sheet and Tube Co., parent company of The Continental Supply Co., will exhibit samples of all types of tubular goods and couplings. A special feature will be Hydril drillpipe and Youngstown Speedtite casing, both pioneered and developed by Youngstown engineers.

Youngstown Steel Products Co.

In attendance

ORA C. COX BRUCE COX

The Youngstown Steel Products Co. subsidiary of the Youngstown Sheet & Tube Co. will have on display in conjunction with the parent company all types of forged-steel unions, including the recently inaugurated handle-bar type union. Of exceptionally strong construction to resist making up and breaking down countless times. Youngstown forged-steel unions are furnished with either brass or steel seats, machined to a mirror-like finish. Black or udylite cadmium treatment of these unions affords protection against sparks or corrosion, both constant hazards in the field against which no measure of prevention can be construed as an unnecessary safeguard.

Westcott Valve Co.

Booth 428

In attendance

A. V. WADSWORTH JOHN WALKER
LYLE WADSWORTH H. H. TINCH

Samples and parts of gate-valves, drilling-valves, check-valves, choke-valves and christmas tree fittings will comprise the Westcott Valve Co. exhibit. All Westcott products are produced in keeping with the latest design and metallurgical practice, using only the highest-grade materials available.

Broderick & Bascom Rope Co.

Booth 428

In attendance

D. LARKIN F. C. ZIMMERMAN
W. R. GAYLE EARL DEACON
R. A. HILL

In conjunction with the Westcott exhibit the Broderick & Bascom Rope Co. will display samples of oil-industry wire rope, a name which has been familiar to members of the oil industry for many years. In addition to an assorted display of samples shown, factory methods will be explained by attendants.

Mechancial Rubber Co.

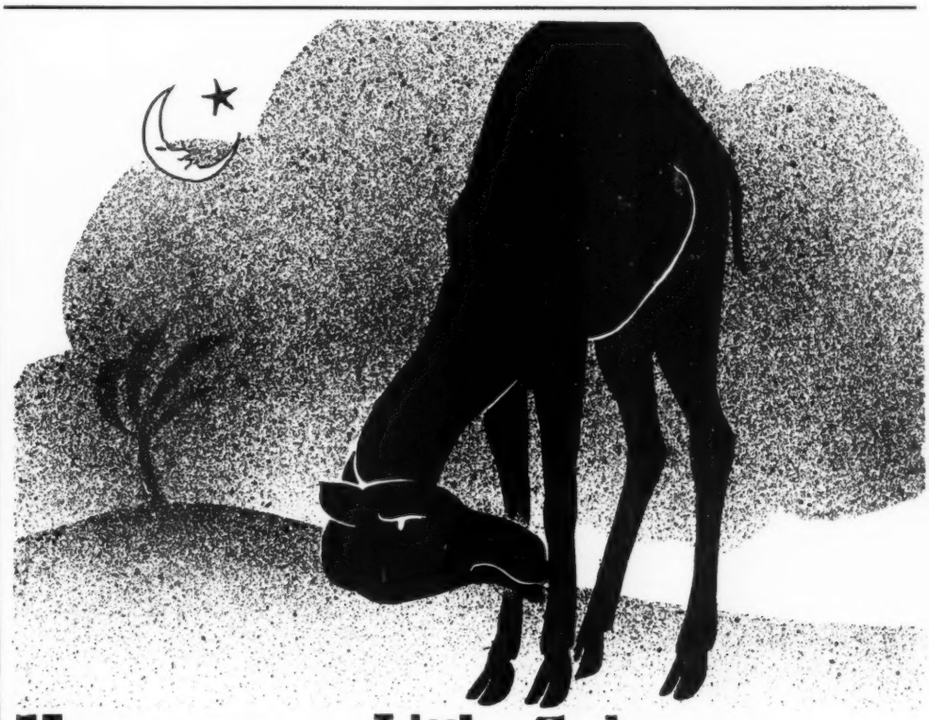
Booth 430

In attendance

B. F. RUTHER WALTER E. BELCHER
A. L. LANGLEY LOUIS DEUTSCH
C. A. FRANKLIN, JR.

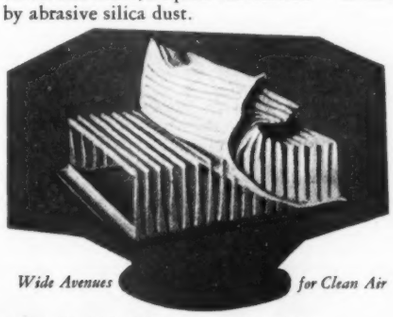
Samples of both Rough Rider cord and Rough Rider raw-edge transmission belting will be exhibited by the Mechanical Rubber Co. Both these types of belting were designed especially for oil-field service, having a cord-ply construction which permits a neat and correct adjustment of plies to the required weight and strength, with minimum elongation under enormous shock loads.

An interesting part of the display will be samples of



Have you a Little Sahara on your payroll ?

Then that's a good place to cut down. Put a Coppus Filter on your air compressor or engine and save the cost of reborings, replacing valves and liners, frequent lubrication — caused by abrasive silica dust.



Wide Avenues for Clean Air

Nearly every leading oil and gas producer and refiner is now using Coppus Air Filters — proven by dust count and light reflection tests, the most efficient of all commercial filters. Dry-type — no oil to clog. Practically self-cleaning. Wide pocket areas — no narrow spaces to fill with dirt. Steel construction — no wires, few welds. They're the filters the dust storms couldn't lick!

Accepted and listed by those manufacturers controlling 96% of air compressor and stationary engine sales. Write Coppus Engineering Corp., 354 Park Ave., Worcester, Mass., for Bulletin F-310-3. Branches in oil centers, representatives in principal cities — listed in THOMAS' REGISTER

CLEAN AIR FOR MEN AND MACHINES COPPUS

Other Coppus Products: Filters for industrial and general ventilation; Heat Killers; exhausters, ventilators, and blowers of many types; steam turbines. See SWEET'S CATALOG, COMPOSITE CATALOG.

COPPUS AIR FILTERS PASS CLEAN AIR

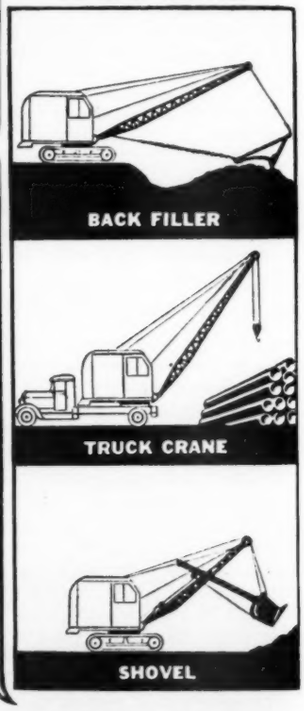
In the Fields AND ALONG PIPE LINES....

P&H BANTAM WEIGHTS
CUT COSTS EVERYWHERE

Not by any means are the activities of these fast little machines limited to the oil fields—for digging slush pits, basements, erecting structural steels, handling materials, etc. But you'll see them as trench hoes, speeding up work on many important pipe line jobs as well. For these husky little ½-yard machines are easily converted for six types of service with simple attachments that permit changeover right in the field. . . . The popularity of the Bantam Weights in the oil industry is built on their performance records. They have the strength to stay on the job with all-welded construction of alloy steel . . . they have the speed and easy handling to work faster . . . they have all the power you ever need with the husky Ford V-8 engine. And economy? . . . Users tell us they operate at the lowest costs ever known for a machine of this size and type.

The Bantam Weight can be mounted on truck chassis or on its own tractor-type crawlers. Special trailer units give you cross country travel at motor car speed. Ask us to send you bulletin No. X-19.

CONVERTIBLE FOR ALL TYPES OF SERVICE



SMOOTHARC WELDERS

Whether your job is welding on pipe lines, around oil derricks or repairing field equipment, P&H-Hansen Smootharc Welders are the logical answer. For here is arc welding in its simplest form. Its single current control means an end to complicated dials, adjustments—far less chance for weld failures. It is the only welding generator that automatically regulates open circuit and arc voltage to produce a steady, easy handled arc. It makes your work go faster. Get the whole story about Smootharc Welders. Ask us to send you Bulletin W-10, "The Arc-Welding of Tomorrow." Address the Harnischfeger Corporation, 4527 W. National Avenue, Milwaukee, Wisconsin.

Warehouses and Service Stations: Dallas — Los Angeles San Francisco — Hoboken — Memphis — Jacksonville — Seattle

HARNISCHFEGER CORPORATION

EXCAVATORS • ELECTRIC CRANES • ARC WELDERS P&H HOISTS • WELDING ELECTRODES • MOTORS

Super Rough Rider rotary hose, known for its ability to resist abrasion due to its multiple plies of strong cotton duck, flat-braided steel wire and durable live rubber. Rough Rider slushpump suction hose, Hel-Fi steam hose and C. S. Co. packing will be on display.

New Bedford Cordage Co.

Booth 430

In attendance

GEO. W. HAYWOOD HARRY DAVIS

A large number of sizes of manila rope, together with drilling cables, spinning lines, bullropes and catlines will be exhibited by the New Bedford Cordage Co. Made from only the highest-grade selected manila fiber and manufactured with precision experience obtained only by skilled rope-makers, New Bedford cordage has been distributed exclusively to the oil industry since the company was organized in 1912.

Fred E. Cooper

Tulsa, Okla.

Representing Allis-Chalmers Manufacturing Co.

Outside Space

In attendance

FRED E. COOPER A. G. BAILEY
HARRY ALLEN H. B. BLOXOM
FRED NELSON DOWNS BLACKBURN
O. J. WORK ORVILLE WORK
W. E. GORANFLO C. C. SWANCY
B. S. SCOTT

The exhibit of Fred E. Cooper will include well-servicing equipment and power engines, high-speed winch tractors, skid winches and power engines made

by the Allis-Chalmers Manufacturing Co. The following units will be shown: U-E single-drum tractor with rotary attachment, UEL single-drum skid with rotary attachment, U-E double-drum tractor, UM double-drum tractor, UM single-drum tractor, L-90 power unit, U-40 power unit, E-60 power unit with heavy-duty clutch-shaft, W-25 power unit.

Coors Porcelain Co.

Golden, Colo.

Booths 344, 346

Corbett Corp.

Houston, Tex.

Booths 934, 936, 938

In attendance

E. B. CORBETT C. S. WALLACE
E. E. NICHOLSON S. L. BARBER
PAUL BUSH FRANK O'BRIEN
DR. IHRIG R. D. EISER
J. B. GIBSON

The Corbett Corp. will exhibit a large line of oil-field specialties including Taylor forged fittings; Globe boiler-tubes and mechanical tubing; Champion rivets and welding rods.

Corning Glass Works

Corning, N. Y.

Booths 344, 346

Crane Co.

Chicago, Ill.

Houston Oil Field Material Co. exhibit

Booths 150, 152, 154, 156, 158, 160, 251, 253, 255, 257, 259, 261

Crosby Steam Gage & Valve Co.

Boston, Mass.

Booths 344, 346

Crouse-Hinds Co.

Syracuse, N. Y.

Booths 309, 311

Crutcher-Rolfs-Cummings, Inc.

Houston, Tex.

W-K-M Co. exhibit

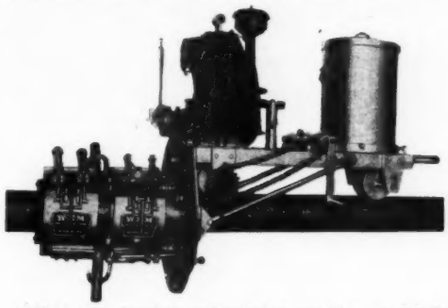
Booths 504, 506, 508, 510, 605, 607, 609, 611

Space 1002 outside

In attendance

E. L. ROLFS A. S. CRUTCHER
J. E. CUMMINGS

Crutcher-Rolfs-Cummings, Inc., distributor of pipe line equipment and materials, will demonstrate among other products the Wilson special pipe-line welding ma-



W-K-M pipe-cleaning and priming machine, model F

chines; the recently developed K&M pipe-line clamp and a complete line of W-K-M pipe-line cleaning and priming machines. Among these latter machines will be the W-K-M model B, and the W-K-M model F, both in traveling and stationary types. It will be shown that new pipe where coated for protection against corrosion should first be well cleaned before application of protective coating, and that old pipe should be properly cleaned for inspection of condition before welding and reconditioning.

Cyclone Fence Co.

North Chicago, Ill.

United States Steel Corp. exhibit

Booths 264, 364, 365, 366, 465

Cummins Engine Co.

Columbus, Ind.

Space 1001 outside

W. H. Curtin & Co., Inc.

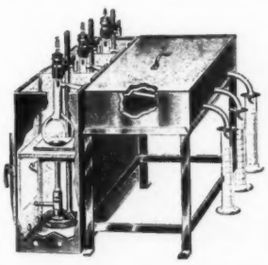
Houston, Tex.

Booths 344, 346

In attendance

K. H. CLOUGH M. A. SMITH
B. B. MANUEL J. A. MULLER

W. H. Curtin & Co., Inc., established some 15 years ago, carries complete stocks of laboratory apparatus, chemicals, scientific instruments, and steam appliances. The illustration shows its No. 16113 distillation unit. It will have on exhibition products of the following manufacturers:



Coors Porcelain Co. — Manufacturer of porcelain.

Corning Glass Works — Manufacturer of "Pyrex" glassware.

Crosby Steam Gage & Valve Co. — Manufacturer of pressure gauges and relief and pop safety valves.

The Hays Corp. — Manufacturer of combustion-control equipment.

International Equipment Co. — Manufacturer of centrifuges.

Kimble Glass Co. — Manufacturer of scientific glassware.

Precision Scientific Co. — Manufacturer of laboratory equipment.

Spencer Lens Co. — Manufacturer of microscopes.

Strong, Carlisle & Hammond Co. — Manufacturer of steam traps.

C. J. Tagliabue Manufacturing Co. — Manufacturer of oil-testing instruments, thermometers and pyrometers.

D & B Pump & Supply Co.

Dallas, Tex.

Booth 332

Continental Supply Co. exhibit

M. N. Dannenbaum Co.

Houston, Tex.

Booths 516, 518, 520, 621

The M. N. Dannenbaum Co. will display equipment showing the latest improvements made by manufacturers this company represents.

Control specialties of the Fisher Governor Co. including pressure-regulating valves, liquid-level controllers and allied equipment, will be shown in sectional and working models.

Barco flexible ball joints, in all types used in drilling, production and refining, will be displayed.

Yarway impulse steam traps will be known for the first time in the standard type, suitable for 400 pounds pressure, as well as for 600 pounds service.

A sectional model of a Peerless Moturbo deep-well turbine-type pump will be in operation.

Refinery return bends and high-temperature alloy castings for refinery service, manufactured by the Sivyer Steel Casting Co., will be shown.

Darling Valve & Manufacturing Co.

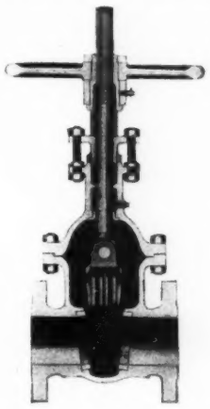
Williamsport, Pa.

Booths 558, 560

In attendance

FRANK CAVENAGH EARL J. CONNELLY
T. M. JONES J. S. KIESEL
H. B. FOSTER M. L. HOUGH

The Darling Valve & Manufacturing Co. will show a line of cast-steel taper-seat gate valves of an improved design for high-temperature and refinery service. A sectional view is given in the accompanying illustration. One of these valves is equipped with a motor and an electric unit for remote control.



Included in the display will be forged-steel double-disc gate valves for drilling-through and flow-line service, Darval semisteel double-disc gate valves and check valves for cross-country pipe lines and gathering lines and a line of all-bronze gate valves. Several of the valves will be cut away to show the internal construction and action of the parts as the valves are operated.

A Darling fire hydrant for use in high-pressure fire service lines at refineries and industrial plants will be shown.

There will be an interesting display of Darcova valve-cups. Darval and Darflex composition valve-cups and Darling balls and seats.

Davis Regulator Co.

Chicago, Ill.

Westcott & Greis, Inc., exhibit

Booths 728, 730

The Dayton Rubber Manufacturing Co.

Booths 256, 258

In attendance

KARL GLANTON T. C. DAVIS
E. P. SPORE D. T. WINTER
R. L. WETZEL

Features of the Dayton cog-belt drive will be explained by the Dayton Rubber Manufacturing Co., Dayton, Ohio. These features include: Minimum space required because of smaller pulleys and extremely short center-to-center distances possible without use of idlers. Positive speed, due to exact speed ratio being maintained through greater gripping power. Rugged, in as much as dust or moisture-laden atmospheres have no effect. Smooth starting and running because the belts absorb the shocks of power suddenly applied through

GOTT WATER CAN
Made in 1½, 3, 5, and 10 gallon sizes.

Gotkool

WATER CANS & COOLERS

GOTT Water Cans are the practical way to keep drinking water cool for long periods, protected from impurities and always handy to the job. Snug fitting large removable top, strongly built to withstand rough usage. GOTT Water Coolers have extra large covers and a handy non-leaking push button faucet. Your Supply Store has them, get one today!

GOTT WATER COOLER
Made in 3, 5, 8, 10, and 20 gallon sizes.

H. P. GOTT MFG. CO.
WINFIELD, KANSAS

KEEP PURE DRINKING WATER ALWAYS HANDY

Monsanto SELECTIVE SOLVENTS

And Other Chemicals For The Oil Industry

- Phenol
- Cresylic Acid and Cresols
- Muriatic Acid
- Sulfuric Acid
- Caustic Soda
- Chlorine
- Phosphoric Acid and its derivatives

The increasingly wide application of these and other Monsanto products makes them worthy of your attention . . . We shall be glad to discuss your present or potential requirements of chemicals.

Monsanto Chemical Company
St. Louis, U.S.A.

. . . also
SANTOLUBE CC
(A CORROSION INHIBITOR)

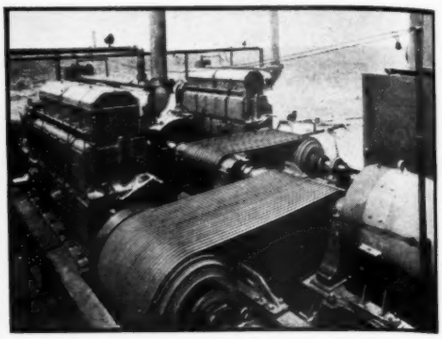
•

At high temperature lubrication, where oxidizing conditions cause bearing metals to corrode, from ¼% to ½% of Santolube CC is effective in oils refined by conventional as well as solvent extraction processes.

CALS OF QUALIT

Monsanto

"seating" action of belts in grooves. Elimination of vibration. Due to smooth running belts, replacement is infrequent. No lubrication is necessary, no dressing. Exceptionally long life. Correct mechanical design



eliminates necessity of frequent "take-ups" and permits less tension; therefore, easy on bearings, machinery, etc.

Dean Bros. Co.
Indianapolis, Ind.
Norvell-Wilder Supply Co. exhibit
Booths 104, 106, 108, 110, 112, 114, 116, 118, 120, 205, 207, 209, 211, 213, 215, 217, 219, 221

C. B. Delhomme
Houston, Tex.
Space 1014 outside

Thos. Devlin Manufacturing Co.
Burlington, N. J.
Booths 533, 535

Diamond Chain & Manufacturing Co.
Indianapolis, Ind.
Spaces 1240, 1341 outside
In attendance
J. L. WAMSLEY — W. B. HAISLUP
D. R. HODGES — W. A. WARRICK

The Diamond Chain & Manufacturing Co. will have a complete display of roller chains used on pumping units and for drilling and servicing equipment, along with sprockets with which these chains operate; also several sizes of new and improved double chain type flexible shaft coupling. Enlarged photographs of actual applications will be on exhibit, along with a large map of the United States showing localized stocks carried by the company's distributors throughout the Southwest. Typical oil country chains will display the various parts and careful workmanship incorporated in making up these chains for oil-country use.

Dixon Valve & Coupling Co.
Philadelphia, Pa.
Booths 533, 535
In attendance
J. E. BOBO — S. J. YERKES
R. B. GOODALL

The Dixon Valve & Coupling Co. will portray the history of rotary hose couplings. This display should be of particular interest to all drilling men for it emphatically brings to mind the advances made by the company in couplings for this use.

Featured is the latest of Dixon's rotary couplings, the "Boss Giant Tri-Duplex" style Z. This coupling has successfully tested many lengths of rotary hose to and above 10,000 pounds per square inch.

Dixon is exhibiting also a machine for the insertion and removal of nipples from rotary or other large-sized hose. It serves also as a rigid vise for the application and further tightening of clamps to hose before it is placed in service. This machine is standard equipment with many of the large jobbing houses and rubber mills.

Dodge Manufacturing Corp.
Mishawaka, Ind.
Booth 767

The Dodge Manufacturing Corp. will display a novel arrangement of Timkenized pillow-block bearings, V-belt sheaves and Diamond D friction clutches, all of

which will be driven by a variable-speed motorized transmission.

Most of the products shown on this running display will be in cutaway sections in order that actual construction and advantages of Dodge products may be shown.

In addition to the running display there will be a cutaway section of a 4 7/16-inch Dodge Timken pillow-block equipped with a hand crank, in order that visitors may study actual operation and features of the bearing.

There will also be on display the largest-size Diamond D friction clutch made to date, which is normally rated at 400 horsepower and will weigh approximately 1½ tons. This clutch was designed for use on rotary drilling rigs and for drilling wells up to 12,000 feet deep. It can be used on shafts having diameter up to approximately 10 inches.

The Duff-Norton Manufacturing Co.

Booths 414, 416

The Duff-Norton Manufacturing Co., Pittsburgh, Pa., will display its complete line of lifting jacks used in the oil industry. The company's general purpose (four-way No. 1523) jack will be a feature. This jack is exceptionally useful and dependable, built for rough-and-ready service. It is sturdily made but extremely light in weight. It is conveniently handled and spotted, yet easily operated by one man. A pivotal base permits the jack to be operated at any angle for shoving, pushing, etc. All working parts are fully enclosed and protected from dirt. Built without screws, there is no danger of parts coming loose or getting out of adjustment. Spring mechanism is self-contained in removable housing, which may be taken bodily from the jack. There are no loose pieces, bolts or nuts to adjust. A steel chain fits into slots on top of the jack and can be used as a sling to engage various objects. A double socket layer aids effective operation in close and cramped quarters. The model illustrated is used extensively in the oil industry for general use in and around drilling rigs, for assisting trucks out of bad spots, pulling light strings of casing and for shifting and placing heavy awkward materials and equipment.

E. I. du Pont de Nemours & Co.

Wilmington, Del.

Spaces 1108, 1110

In attendance

VA. A. COSLER ALLEN F. CLARK
HARRY G. BIMMERMAN

E. I. du Pont de Nemours & Co. will exhibit Neoprene products, used by the entire petroleum industry from the time the well is started until the final product is delivered to the consumer. Neoprene is an engineering material which resembles rubber in strength, resilience, elasticity and abrasion resistance, but which resists the deteriorating effects of oils, gasoline, heat, ozone, oxygen, chemicals and aging. Products made of Neoprene or products which include Neoprene in their construction to be displayed will include oil suction and discharge hose, submarine hose, curb-service hose, tank-truck hose, fuel-oil hose, rotary drilling hose, gaskets, molded articles, tubing, oil-proof sunlight-resisting clothing, gloves, packers, valves, pistons, couplers, saddles, oil-resisting shoes, bearings and electrical cable.

An illuminated standing display at the back of the booth will present photographs and data showing the method of producing Neoprene and of preparing finished parts. Transparent photographs will show Neoprene applications. An abrasion-testing machine will illustrate the abrasion resistance of the company's material when soaked in oil. An oil-well packer with oil running through it, which has been in use as a display piece for several years, will illustrate the resistance to oil deterioration.

Durametallic Corp.

Kalamazoo, Mich.

Booth 409

In attendance

R. O. AYRES J. H. CARTER
ALLISON WALKER C. C. HALL

The most important feature in the display of the

CASE

CUTS COSTS AND CARE AT CORSICANA

● Driving the modern unit shown below, this Case Model LE oil field engine replaced old style, inadequate equipment at Corsicana, Texas. It pumps 1500 barrels, about 98% water, from 2800 feet.

The more difficult the job, the more you need Case. Flat torque and accurate governing for full power over a wide range of speed . . . dust-sealed design and oil-wash air cleaning to keep dirt out, upkeep costs down . . . automatic pressure lubrication to all important points that cuts attendance time . . . automatic cutouts available for instant protection if temperature goes up or oil pressure goes down . . . honed cylinder sleeves—evenly cooled, long-lived, easily renewed on location. Two sizes, 35 and 55 H.P. Fitted for gasoline, natural gas, or both. Details from distributor or direct from factory.

J. I. CASE COMPANY . . . RACINE, WISCONSIN

Distributed and serviced in the Mid-Continent field by Southwest Equipment Co., Dallas and Kilgore, Texas. Stocks at Dallas, Houston, Kilgore, Texas; Shreveport, Louisiana; Oklahoma City, Oklahoma; Wichita, Kansas.

NATIONAL AIROIL BURNER COMPANY
ESTABLISHED 1912 INCORPORATED 1917

Manufacturers
Installation
Engineers
Sales - Service

Industrial Oil Burners Gas Burners and Furnace Equipment

NATIONAL AIROIL BURNER

NAIROIL Automatic Oil Burners for HOMES APARTMENT HOUSES CHURCHES, STORES FACTORY BUILDINGS OFFICE BUILDINGS

Offices and Salesrooms
1325-27 Girard Avenue
Factory
L St. & Sedgley Avenue
Philadelphia, Pa.

Accurate Results, Quicker . . . Easier with this
CURTIN CENTRIFUGE

It meets all *A.S.T.M. Standard Method D-96-35* and *A.P.I. Code No. 25* requirements. It is ruggedly built, simple in design and needs no special care. Gear ratio and throw of the crank designed to produce the required speed with the least effort consistent with good mechanical construction.

No. 3480

Cranks and Heads for 100 c.c. and 15 c.c. machines are interchangeable

Write for complete details.

SOLD BY

W. H. CURTIN & CO.
INCORPORATED
HOUSTON, TEXAS

SPECIFICATIONS FOR

REILLY PIPE ENAMEL AND PRIMER

Lasting Protection for Steel Pipe

The life of steel pipe is measured
opments in pipe protection are emb
withstand extreme changes in tem
elevated temperatures and cann
coating and the steel is unequa
Enamel is insured for
growth cannot occur

The rigid technic
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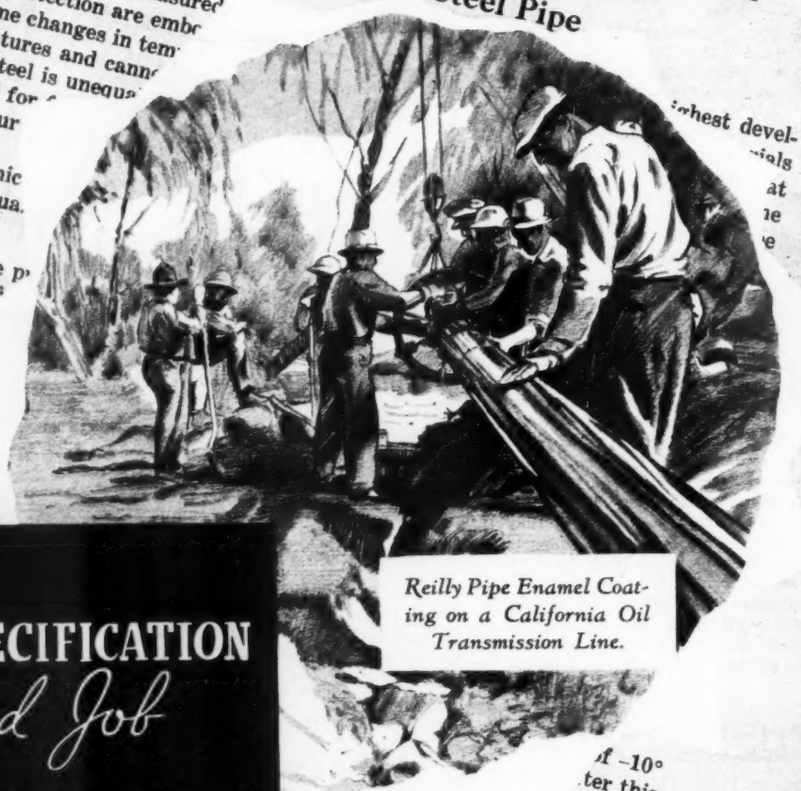

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Reilly Pipe Enamel Coating on a California Oil Transmission Line.

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...at in addition the material
Six mild steel panels 1/16 x 4 x 10
Primer and Enamel. The Enamel
coating the panels shall be stored
Each panel shall be tested sep-
nameled side down on rounded
uncoated face through a similar
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½ inches in length. The deflec-
be noted and the loading con-
l then be inspected and if a
shall be determined by care-
Enamel which exhibits the
the six panels the Enamel
ot more than 5.0 sq. in. of

...RATION

500 ...

★

BENEATH THE SPECIFICATION
..the finished Job

The finished job coated with Reilly Pipe Enamel gives assurance of a job well done . . . the assurance of dependable and permanent protection. Such confidence is founded on the rigidity of Reilly specifications . . . no flow or sag at temperatures approaching 200°F. . . . no chipping, peeling or cracking at sub-zero temperatures as low as minus 20°F. The inherent dependability of Reilly Pipe Enamel merits your attention.

Full information concerning specifications and application of Reilly Pipe Enamel will be submitted upon request.

Reilly
COAL TAR PRODUCTS

REILLY TAR & CHEMICAL CORPORATION

Executive Offices: Merchants Bank Building, Indianapolis, Indiana

2513 S. DAMEN AVENUE, CHICAGO, ILLINOIS 500 FIFTH AVENUE, NEW YORK, N. Y. ST. LOUIS PARK, MINNEAPOLIS, MINN.

FIFTEEN PLANTS TO SERVE YOU

Durametallic Corp. will be the company's Durametallic packing grade D-10 in spiral form and D-110 in die-molded ring sets. This packing has long been a valuable item of maintenance in refineries working hot oil both on centrifugal and reciprocating pumps. Many large refineries are using this type of packing.

In addition will be displayed grades C-10, C-110, B-10 and B-110 packing for steam, water and cold oils.

Dura Seal, a mechanical seal for use in sealing centrifugal pumps, will be shown, and one pump will be in operation with a seal installed on it. Dura Seal has aroused interest of late because of its effectiveness on centrifugal pumps working propane, butane, and other light ends of petroleum.

Dura Hook, a flexible packing-puller of unusual sturdiness, will be shown in all sizes.

Eastman Oil Well Survey Co.

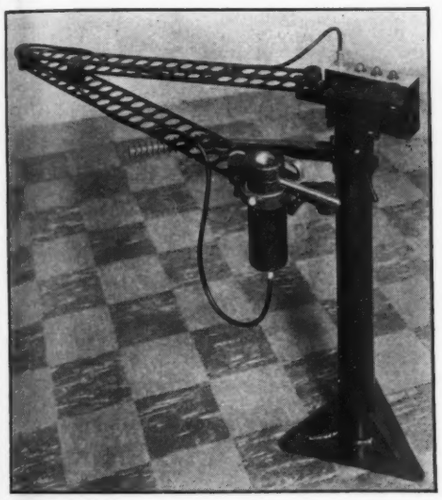
Dallas, Tex.

Booths 318, 320, 419, 421

In attendance

H. JOHN EASTMAN — JAMES D. HUGHES
R. F. BOLTON — THOMAS G. MARTIN
C. P. COLLINS — W. J. OPOCENSKY

The Eastman Oil Well Survey Co. will exhibit a complete line of oil well surveying instruments along with a new and highly advanced method and apparatus for orienting drillpipe. The single-shot survey instrument is to be shown in cutaway section so that users may see for themselves the sturdy construction that permits



the instrument to work properly under long periods of operation. The inside single-shot instrument, used with retractable wire-line coring equipment to run inside drillpipe and obtain a directional survey, is also to be shown in section. The photographic drift indicator, which can be run in the drillpipe on a go-devil or Halliburton line to secure an accurate photographic record of the number of degrees a hole is off vertical, will be displayed.

Another exhibit will be an improvement in multiple-shot directional surveying instruments. The diameter has been reduced to that of the regular single shot and the film capacity and operative period has been greatly increased. The new auto-photo orientor, used in conjunction with the multiple shot survey, will be shown, as well as the improved double-image projector by means of which the survey film is correlated with the auto-photo film. Other associated items will be on view.

Electric Machinery Manufacturing Co.

Minneapolis, Minn.

Brance-Krachy Co. exhibit

Spaces 1122, 1124, 1223, 1225 outside

Edward Valve & Manufacturing Co., Inc.

East Chicago, Ind.

Booths 708, 710, 712

In attendance

W. W. CRAWFORD — J. E. McDONALD
W. F. CRAWFORD — W. W. MOHR

The Edward Valve & Manufacturing Co., Inc., will exhibit, against a modern background display of huge photomurals, cast and forged-steel valves for refinery, pipe line, and producing divisions of the petroleum in-

dustry. The following types of valves will be exhibited:

Forged-steel stop-valves—A complete line of screwed-end, flanged-end and welding-end globe and angle stop-valves of forged carbon and alloy steels. Included are many types, from tiny gauge-valves for instrument lines to large screwed-end forged-steel hydraulic valves for 6,000-pound w.w.p.

Check-valves—Forged and cast-steel nonshock piston-type and ball-type check-valves for pressures up to 6,000 pounds.

Oil-field boiler stop-valves—Edward 3- and 4-inch globe and angle stop-valves for use on oil-field boilers.

Hydraulic valves—Of special interest to production men will be the Edward line of forged-steel hydraulic valves suitable for pressures up to 6,000 pounds.

Boiler-Valves—Edward nonreturn, feedline stop-check and blowoff valves for all boiler operating pressures.

Relief-valves—All-steel relief-valves with ball-type disks and totally enclosed bonnets.

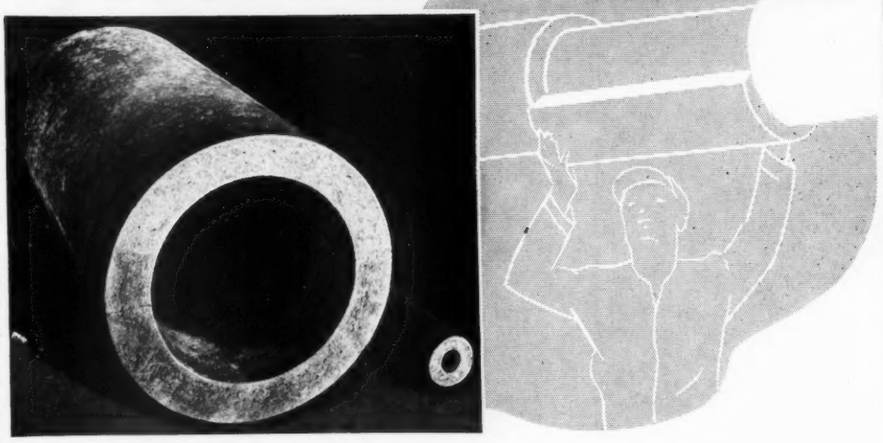
Strainers—Users of traps, pressure regulators, pumps, etc., will find the exhibit of forged-steel strainers of value.

Straight-through valves—Edward forged carbon and alloy steel straight-through valves with swivel plug

(Continued on Page 212)

YOU CAN HANDLE OR EVEN

MAN-HANDLE IT WITHOUT HARM!



EASILY Removed for Inspection and Re-applied Without Waste

UNIBESTOS

HEAT INSULATION

There is nothing like UNIBESTOS — no other insulation that combines such high thermal efficiency with such rugged, punishment-proof, long lasting structural strength.

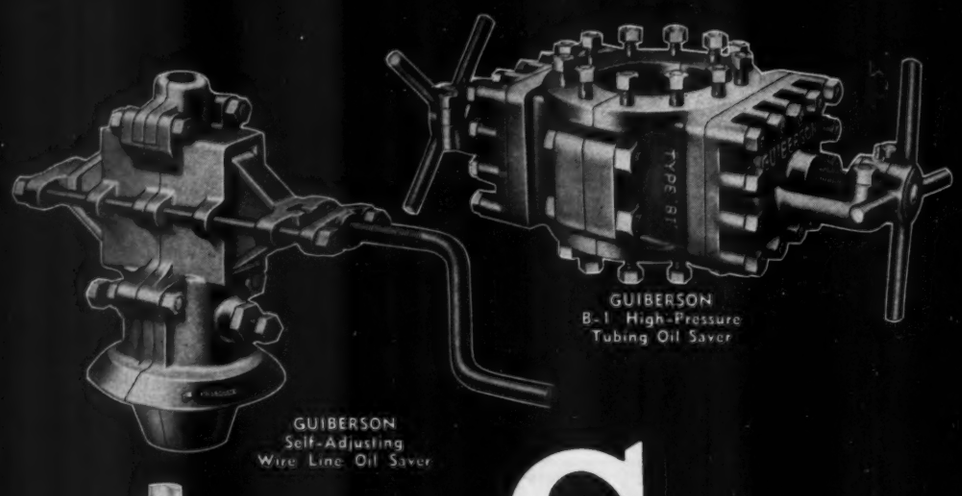
It is sectional insulation, easily applied and just as easily removed for the periodical inspections of refinery practice. Back it goes after inspection, just as firm, strong and solid as ever, and just as efficient. There is no breakage, no shake-down or disintegration, no powdering — no waste whatever.

This structural stability comes from the novel Amosite Asbestos Fibre used as a base. In addition, Unibestos is *light in weight*, so that even in the large 24-inch sections, it may be easily handled by one man!

Thus, to low first cost, is added low application and low upkeep cost, providing an *investment value that cannot be equaled today by other insulations*. Let us prove this to you — write for data and authoritative test results. No obligation whatever.

UNARCO

UNION ASBESTOS AND RUBBER CO.
1821-33 So. 54th Avenue, Cicero, Ill.
INSULATIONS — PACKINGS — ASBESTOS TEXTILES — FRICTION MATERIALS



GUIBERSON
Self-Adjusting
Wire Line Oil Saver

GUIBERSON
B-1 High-Pressure
Tubing Oil Saver

GUIBERSON
Tubing
Stripper

SEE US AT

New Controlled-Pressure Drilling-In Equipment

One of the most important advances of the past year, in drilling equipment, has been the GUIBERSON "drilling-in-under-controlled-pressure" completion equipment shown at left. With this equipment the operator is able to drill in using oil, a mixture of oil and gas, or gas alone as a circulating medium. Among its advantages are:

(1) Oil and gas can be produced while drilling in, as formations will produce through the light circulating column; (2) Well starts paying off when bit reaches sand, avoiding washing, swabbing or bailing time and expense; (3) Sands are not penetrated by water and mud but are brought in clean.

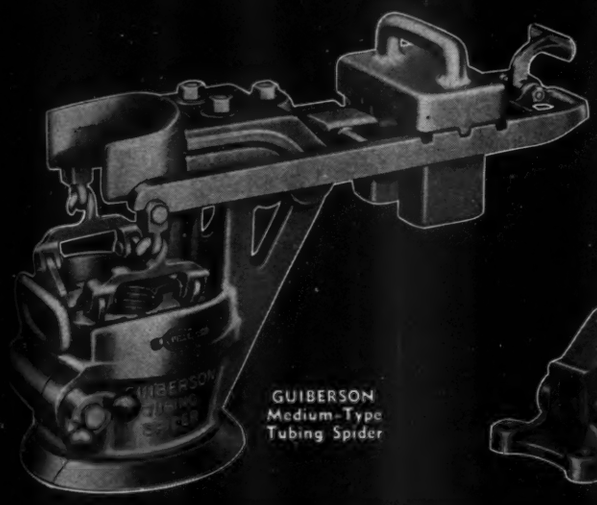
There are other advantages, also, which we will be glad to explain.

THE GUIBERSON CORPORATION . .

GUIBERSON
Friction Kelly Drive and Type "D" High Pressure Oil Saver for Drill Pipe or Tubing tested to 3,000 Lbs.

GUIBERSON
Collapsible Friction Kelly Drive, High-Pressure Drilling Head for Round Kelly, Quick Detachable Coupling, and Type "D" High-Pressure Oil Saver tested to 3,000 Lbs.

BETTER BE SAFE THAN SORRY
GUIBERSON
GUIB



GUIBERSON
Medium-Type
Tubing Spider

GUIBERSON
New Type B
Floor Block

GUIBERSON
Improved Sucker
Rod Stripper

T THE SHOW

New Models of Tubing Oil Saver, Packer, Floor Block

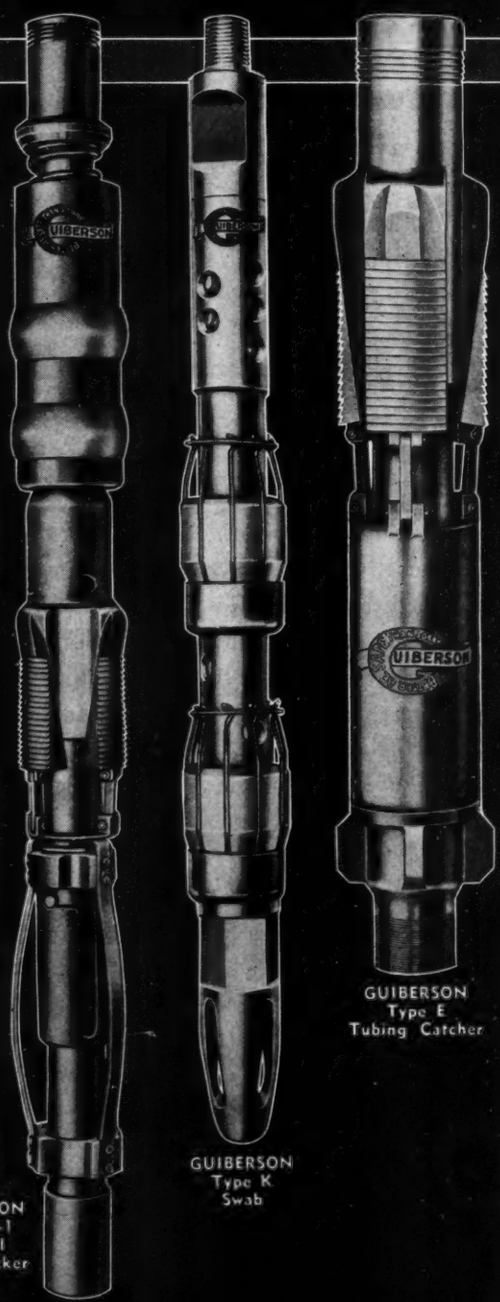
During the past year many new models incorporating valuable new features have been added to the GUIBERSON line — notably new models of Control Head Packers, High-Pressure Tubing Oil Savers and Floor Blocks.

Our new Type B Floor Block represents a distinct advance in floor block design. The frame forms a complete safety guard, eliminating all possibility of a man getting his hand caught between line and sheave. Like our advanced Type A-1 Block, the Type B has a lateral movement only 45 degrees each way from vertical, but swivels around its longitudinal axis a full 360 degrees; frame is open at lower end so that line need not be threaded through block; and sheave is mounted on heavy-duty tapered roller bearings.

Visit us at Booth Numbers 458, 460, 561

. . . . . BOX 1106, DALLAS, TEXAS

BERSON



GUIBERSON
Type E
Tubing Catcher

GUIBERSON
Type K
Swab

GUIBERSON
Type G-1
Control
Head Packer

disks will be exhibited. These valves are for use on instrument and sampling lines under conditions where free open flow is imperative.

Emsco Derrick & Equipment Co.
Los Angeles, Calif.
Booth 334
Continental Supply Co. exhibit

Ensign Carburetor Co., Ltd.
Huntington Park, Calif.
Booth 757
In attendance
GILBERT WOODILL L. C. ARTER

The Ensign Carburetor Co. will show a full line of Ensign precision carbureting and fuel-regulating equipment including the various models and sizes of gas, gasoline, and combination carburetors; heat-exchangers; fuel-regulators; and butane equipment manufactured by Ensign. Cut-out models will show how this equipment functions in actual service. The display is expected to reflect Ensign's policy of continual pioneering and development work which has been responsible for valuable contributions toward the advancement of power equipment during the past quarter of a century.

Erie Tool Works
Erie, Pa.
Booths 234, 236

Everlasting Valve Co.
Booths 508, 609
In attendance
JOHN H. ALLEN E. BOLL

The Everlasting Valve Co., Jersey City, N. J., exhibiting in connection with the W.K.M. Co., will feature its regular Everlasting valve and Everlasting valve special for 350 pounds pressure, well known as boiler blowoff equipment on oil-field boilers. The Everlasting emergency throttle shut-off valve will come next in line. The company also will show the Everlasting duplex blow-off unit, Everlasting companion angle valve, Everlasting water-column connection valve and unique construction in valve design. The items last mentioned apply to refinery service.

Everlasting valve special for 350 lbs. pressure Figure 1010-350

AGAIN

NORTHERN NATURAL GAS

selects

ON-THE-JOB MACHINE-COATING

Thoroughly satisfied with the speed, thoroughness and perfection of our on-the-job machine-coating — as proved on 20 miles of 20" pipe at Palmer, Kansas—Northern Natural Gas Co. has commissioned us to coat their new Minnesota line, consisting of about 33 miles of 8⅝" O. D. pipe. Another yard shop has been quickly set up—this time at Waseca (near Mankato, Minn.) where again the freedom from field hazards and the minimum of weather delays, added to the speed of our specially developed machine, will assure a steady flow of perfectly coated pipe—well in advance of laying needs.

On-the-job machine-coating centralizes full responsibility for all coating application, including field joints and fire bends, in the hands of the coating manufacturer — who knows best how it should be done. It frees the laying contractor from all attention to coating operations. It provides him with a reservoir of coated pipe on which he draws as needed. It insures perfect application—double checked, with holiday detectors in yard and field. It supplies pipe exactly as desired: coated and single or double wrapped with bonded or unbonded felt in one continuous run through the machine . . . or coated in the yard and delivered for wrapping in the field (without appreciable damage to the coating, as has been demonstrated at Palmer and elsewhere). It is the ideal method of securing perfect application of Bitumastic 70B Enamel — the ideal coating material for oil and gas pipe protection.

WAILES DOVE-HERMISTON CORPORATION
Also Manufacturers of INDUSTRIAL PAINTS for All Exterior and Interior Plant Surfaces
BOSTON PHILADELPHIA CLEVELAND CHICAGO TULSA SAN FRANCISCO LOS ANGELES
17 BATTERY PLACE • NEW YORK, N. Y.

Geo. E. Failing Supply Co.
Houston, Tex.
Space 1000 outside
In attendance
GEORGE FAILING T. E. FAILING
W. T. CALDWELL

The George E. Failing Supply Co. will display its models of exploration drilling rigs and equipment.

Fairbanks, Morse & Co.
Chicago, Ill.
Booth 431
Continental Supply Co. exhibit

Fairbanks, Morse & Co.
(Manufacturing Division)
Beloit, Wis.
Spaces 1332, 1433 outside
In attendance
F. J. BARTELLA THOS. HINDERER

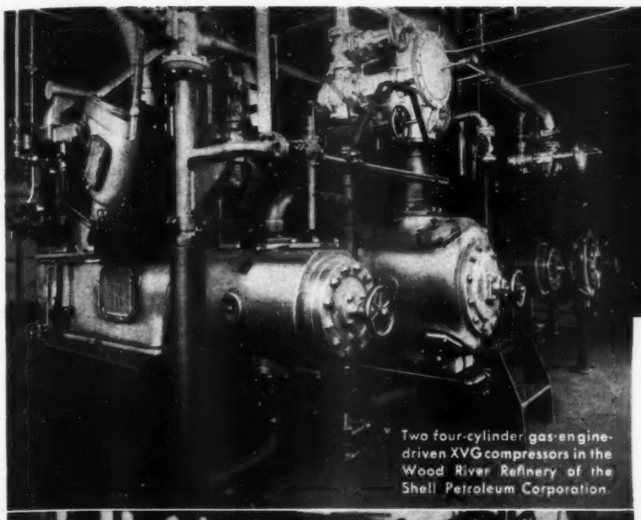
Fairbanks, Morse & Co., Manufacturing Division, will exhibit the line of type RV magnetos, for application 1-, 2-, 4- or 6-cylinder engines and built in either the base

or flange mounting designs. Either the horizontal or vertical arrangement of drive may be used. This line of magnetos, the manufacturers say, was the first to incorporate the flange mounting arrangement and, further, to use the die cast rotor having the permanent magnets cast in. The magneto housing is completely sealed, being impervious to moisture and dust, and permits no ventilation, thus eliminating the possibility of an explosion.

The exhibit will occupy a part of the space reserved by the J. J. Gibson Co., of Dallas, Tex., representing Fairbanks, Morse & Co., as eastern Texas distributors.

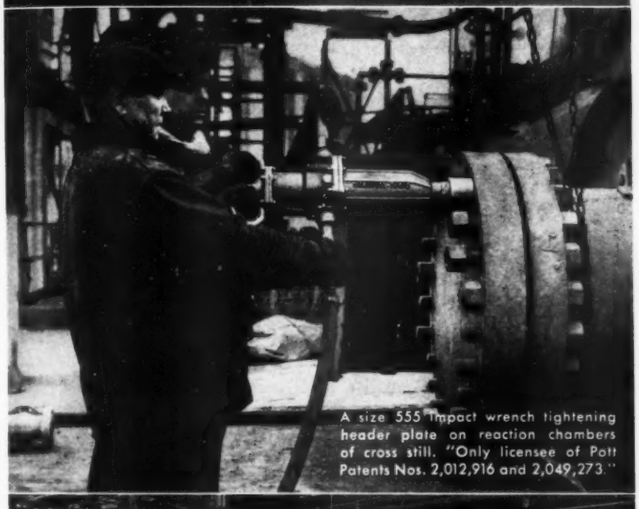
Falk Corp.
Milwaukee, Wis.
Booth 433
Continental Supply Co. exhibit

Farrar & Trefts, Inc.
Buffalo, N. Y.
Space 1037 outside

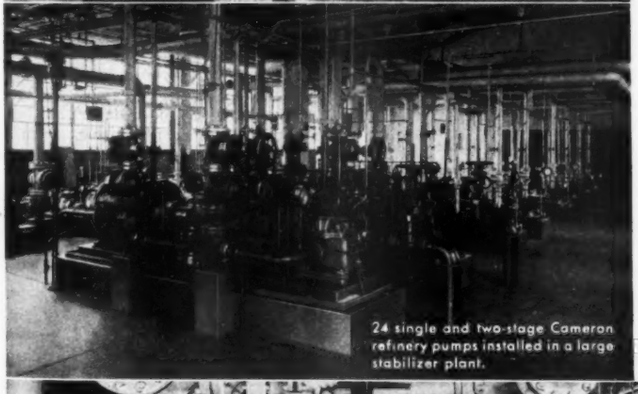


Two four-cylinder gas-engine-driven XVG compressors in the Wood River Refinery of the Shell Petroleum Corporation.

Reliable EQUIPMENT FOR REFINERIES



A size 555 Impact wrench tightening header plate on reaction chambers of cross still. "Only licensee of Pott Patents Nos. 2,012,916 and 2,049,273."



24 single and two-stage Cameron refinery pumps installed in a large stabilizer plant.

Pumps, Compressor and Pneumatic Tools

● The general acceptance of Ingersoll-Rand products for the refinery is substantial proof of their reliability.

Cameron centrifugal refinery pumps are offered in designs and sizes to meet every condition imposed by modern refinery practice.

The Cameron line provides the proper pumps of the proper materials for the cracking unit, the stabilizer unit, the polymerization unit and the treating plant. It also offers you the correct pumps for the lubricating oil and solvent plants.

Cameron pumps are available for general refinery service, including main water supply, cold water circulation, boiler feed, etc.

The famous XVG gas-engine-driven compressor has proved to be the solution to many problems which have confronted refinery men the world over. The complete I-R compressor line includes over 1,000 sizes and types, making it possible to select a machine that is exactly suited to any set of conditions.

The I-R Impact Wrench is the ideal tool for maintenance and repair work in refineries. Three sizes are available—the large 57-pound wrench being able to successfully remove or apply nuts, cap screws and set screws up to 2¼". This pneumatic marvel will pay for itself in a surprisingly short time.

"Other I-R products for refinery service are vacuum pumps, condensers, ejectors, diesel engines and a complete line of pneumatic tools."

INGERSOLL-RAND COMPANY

11 BROADWAY, NEW YORK CITY

Atlanta	Cleveland	Hartford	New York	San Francisco
Birmingham	Dallas	Houston	Philadelphia	Scranton
Boston	Denver	Kansas City	Picher	Seattle
Buffalo	Detroit	Knoxville	Pittsburgh	St. Louis
Butte	Duluth	Los Angeles	Pottsville	Tulsa
Chicago	El Paso	Newark	Salt Lake City	Washington

518-14

49830

A battery of 9 Cameron single-stage centrifugal solvent pumps in a large Duo-Sol Plant.

Fisher Governor Co.

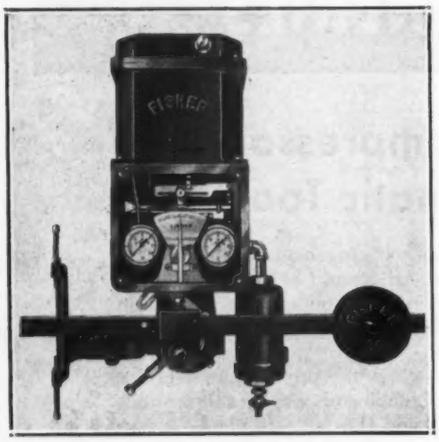
Booths 516, 518, 520, 621

In attendance

P. A. ELFERS R. A. ENGEL
C. D. PETERSON

Also representatives of Smith Separator Corp. and M. N. Dannenbaum Co.

The Fisher Governor Co., Marshalltown, Iowa, will have on display its complete line of automatic controls, including pump-governors, pressure-regulators, lever-valves, steam-traps, strainers, liquid-level controllers,



and many new automatic controllers for the petroleum industry. It will exhibit its complete line of Wizard pilot-operated regulators, and for the first time will show the new Fisher averaging-type liquid-level controller pilot-valve (shown in the accompanying illustration), also its high-temperature 1,500-pound diaphragm motor-control valve and noncoking valve.

Geo. J. Fix Co.

Dallas, Tex.

Baldwin-Duckworth Chain Corp. exhibit

Booths 314, 316

Stanley G. Flagg & Co.

Philadelphia, Pa.

Booths 234, 236

Fluid Packed Pump Co.

Los Nietos, Calif.

Booth 254

In attendance

FRANK NORRIS CLYDE ELLWOOD
ROBERT J. MILLER

Two new pumps especially designed for use in marginal-type and other comparatively small production and shallow wells will be introduced to the trade by the Fluid Packed Pump Co. The new pumps are known as the Marginal fluid packed pump and the "Petrol A" groove seal pump. In addition to these, the company will have a complete exhibit of its other pumps, including the positive-pull type, removable type and rigid-type fluid-packed pumps and the Producer and Volume Producer groove seal type pumps. The complete line of Flupaco pumping accessories will be displayed.

Foote Bros. Gear & Machine Corp.

Spaces 1311-1313 outside

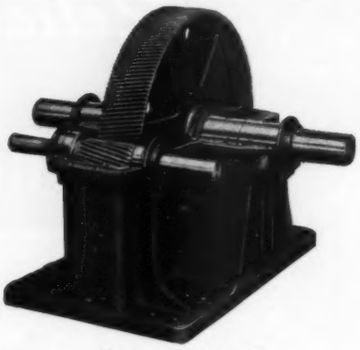
In attendance

F. A. EMMONS GEORGE J. FIX
MAX E. LANDRY T. C. GRAHAM
FRANKLIN F. JONES

The exhibit of the Foote Bros. Gear & Machine Corp., Chicago, will be one of its type 30 SO single-reduction oil well units with capacity of 65 horsepower at 20 strokes per minute. This is said to be the largest size manufactured, capable of pumping the deepest wells for continuous service.

In order to demonstrate the wide range of sizes available in the IXL helical oil well pumping unit line, there will be included one of the smallest type units, known as the 9 DO, which has a capacity of only 3 horsepower at 20 strokes per minute, and is used for pumping shallow wells in the Bradford, Pa., and similar fields.

In addition there will be one of the medium-size double-reduction units, the 17 DO, rating at 30 horsepower at 20 strokes per minute, which will have the cover removed and be operated at approximately 20 strokes per minute in a bath of oil showing the internal



Single-reduction unit

construction of the unit including the gears, bearings and oil-circulating system.

Photographs will show the various processes at the IXL factory involved in the manufacture of the IXL helical pumping units.

C. G. Forshey

Houston, Tex.

Spaces 1112, 1114-A outside

The Foxboro Co.

Foxboro, Mass.

Booth 105

In attendance

MR. LANE MR. BRYAN
MR. THOMAS MR. HUCKMAN
MR. McMAHON MR. GRIFFITH
MR. BURNETT MR. PARTEN

The Foxoboro Co. will exhibit a complete line of indicating, recording, and controlling instruments for the oil industry. To be featured are such new developments as the Foxboro pneumatic and electric remote transmission systems.

The pneumatic remote transmission system combines standard Foxboro flow and level instruments for distant measurement and control. It is possible to send readings of flow and level pneumatically 500 feet from the point of measurement. The electric distance transmission system employs self-synchronizing electric motors housed in explosion-proof units to transmit readings of flow and level electrically up to 2,000 feet from the point of measurement. Both of these new systems permit the use of air-operated control instruments.

This year the instruments in the Foxboro exhibit will be grouped on a central panel board in order that visitors may be able to visualize how similar installations will look in their own plants. A number of the instruments will be cut away or fixed so that the operating mechanism can be seen and demonstrated easily.

The France Packing Co.

Tacony, Philadelphia, Pa.

Booth 312

In attendance

J. A. McPEAK

The France Packing Co. will exhibit a complete line of metallic packing for use on all types of engines and compressors with reciprocating rods and stems. The packing is of the segmental floating-ring type, and is made of either iron, bronze or micarta, depending on the service to which it is to be applied. It is said to be satisfactorily holding pressures as high as 15,000 pounds.

A special feature of France packing lies in the cut of the ring. The ring is cut in three pieces on the lines of an equilateral triangle, and will maintain a tight joint as long as the rod is round.

Frick Co.

Waynesboro, Pa.

Booths 928, 930

In attendance

REPRESENTATIVES FROM BRANCH OFFICES.

The exhibit of the Frick Co. will feature refrigerating, ice-making and air-conditioning equipment. There will be a standard Frick enclosed-type ammonia compressor, cut away to show the moving parts, and turned over slowly by a reduction gear motor. An ammonia booster compressor, designed for producing low temperatures, will be kept in slow motion by a similar motor. A complete model of a dual-pressure ice making plant of the latest type will be the central part of the display. This model has been on exhibition in foreign countries as well as in America and has attracted much attention.

Photographs of installations, a display of high-pressure valves and fittings, literature, etc., will be presented.

Frick-Reid Supply Corp.

Tulsa, Okla.

Booths 350, 352, 354, 356, 451, 453, 455, 457

In attendance

V. V. McGREW C. B. MOORE

Galion Iron Works

Galion, Ohio

Browning-Ferris Machinery Co. exhibit

Spaces 1024, 1025, 1026, 1027 outside

Gardner-Denver Co.

Quincy, Ill.

Booths 626, 628 and

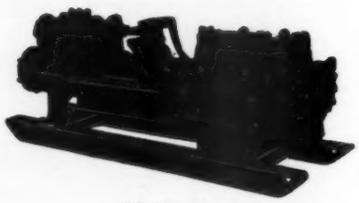
Continental Supply Co. exhibit

In attendance

R. J. McFARLAND

The Gardner-Denver Co. will exhibit a new 10 by 4½ by 10 FJ high-pressure boiler feed pump, an improved single-stage roller-bearing, horizontal air-compressor, a 4-inch type F horizontally split case centrifugal pump and a 4½ by 6 FXG power pump.

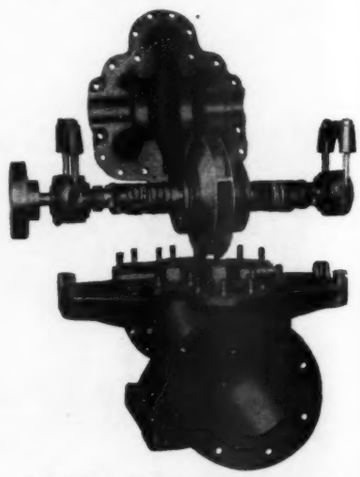
The new 10 by 4½ by 10 FJ steam pump is designed for high-pressure boiler feed service. It is compact and streamlined which makes it well suited for



FJ steam pump

unitization. Valve pot type fluid cylinders are featured with valves in individual compartments, steam cylinders are fitted with piston type valves. The pump is designed for rugged oil-field service.

The improved RX single-stage horizontal compressor is designed for heavy-duty full-load service and continuous operation. The electro-pneumatic control is an



Horizontally split case centrifugal pump

important feature. With this control the compressor always starts unloaded and the air supply is automatically adjusted to fit air needs. The compressor has totally enclosed dust-proof construction without sacrifice of accessibility. Perfect balance and freedom from

MIDWEST WELDING ELLS—They alone have the long tangents that reduce installation time and expense and also save pipe. Other important advantages are dimensional accuracy and uniformity resulting from final working in compression . . . stress relieved . . . etc.

The Featured Players in the drama "Midwest Welding Fittings" have always been Welding Ells and Van Stone Nipples . . . for reasons briefly mentioned in the panels at left and right. • The entire cast is really "all star" because each fills a real need and does its part in simplifying and reducing the cost of welded piping systems. Reading from left to right, front row: Sleeve, Head, Reducer, Saddle and Shaped Nipple; back row: Tee, the Three Flange Sisters (Welding Neck, Threaded and Slip-on) and Return Bend. • But seriously speaking, Midwest Welding Fittings have many advantages for anyone who has piping to weld. Ask for Bulletin WF-36 which tells you all about them.

MIDWEST VAN STONE WELDING NIPPLE—Important saving in time required for both prefabrication and erection results from the swivel flange. Lap is forged to full pipe wall thickness after machining front and back . . . large radius fillet . . . etc.

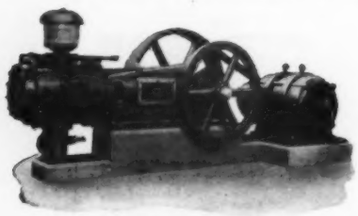
Midwest Piping & Supply Company, Inc.

Main Office: 1450 So. Second St., St. Louis, Mo.

Plants: St. Louis, Passaic (N. J.) and Los Angeles • Sales Offices: Chicago—946 Marquette Bldg. • Houston—1716 Second National Bank Bldg. Los Angeles—520 Anderson St. • New York—(Eastern Division) 30 Church St. • Tulsa—533 Mayo Bldg.

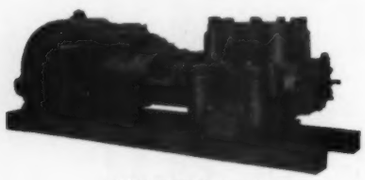
vibration make the RX a smooth and efficient operating machine.

The horizontally split case centrifugal pumps are single-stage high-efficiency pumps, designed for heads up to 300 feet. The impeller is of cast bronze, totally enclosed. The casing is of iron horizontally split at shaft center. The pump is designed for modern rugged service.



RX compressor

The FXG duplex power pumps feature valve-pot type fluid end. The herringbone gears operate in flood-lubricated power ends. Durable light-weight valves are used. Two side suction openings are provided so that



FXG power pump

the suction pipe may be connected to either side. The pumps are designed for use in oil-line and industrial service and are widely used in oil fields for supplying water to drilling rigs. The 3-inch and 6-inch stroke pumps are designed along the same general lines as the Gardner-Denver FX 10-inch stroke pumps.

The Garlock Packing Co.

Palmyra, N. Y.

Booths 519, 521

In attendance

W. A. REDD, JR. — C. B. TYLER
A. C. GUSTAFSON — F. C. THORN
J. H. ROCHE — R. I. HAMILTON
A. T. CRUMP — FORD WILDERS

The Garlock Packing Co. will exhibit a line of mechanical packings in general use in oil fields in various parts of the world. The operation of some of these products will be illustrated by means of moving exhibits. The line covers a wide application in the production, operation, refining and transportation divisions of the oil industry.

Garrott Brass & Machine Co.

Houston, Tex.

Booths 613, 615

Gas Power, Inc.

Houston, Tex.

Booths 204, 206, 305, 307

Gaso Pump & Burner Manufacturing Co.

Tulsa, Okla.

Booths 512, 514

In attendance

L. D. ARMSTRONG — H. F. STOVER
H. A. WIENECKE, JR. — G. W. DREYER
T. H. FLANAGAN

The Gaso Pump & Burner Manufacturing Co. specializes in the manufacture of pipe line pumps.

Gates Rubber Co.

Denver, Colo.

Brance-Krachy Co. exhibit

Spaces 1122, 1124, 1223, 1225 outside

Gearench Manufacturing Co.

Houston, Tex.

Spaces 1323, 1325 outside

In attendance

C. E. OLSEN — W. T. OLSEN

The Gearench Manufacturing Co. will have on display its line of Petol and Titan tools.

General Chemical Co.

St. Louis, Mo.

Booth 249

The J. J. Gibson Co.

Dallas, Tex.

Spaces 1332, 1433 outside

In attendance

J. J. GIBSON — M. A. EASON
F. J. BARTELLA

The J. J. Gibson Co. has arranged an exhibit showing a few of the products of manufacturers whom the company represents in Texas. In the display will be products of the Leece Neville Co., Cleveland, Ohio, manufacturer of voltage regulated generators, from a 75-watt automotive generator to a 1,500-watt generator with full voltage regulation, especially adaptable to oil-field drilling equipment where unitized lighting equipment is desired. The Fairbanks, Morse & Co., magneto division, will display its new Fairbanks-Morse magneto, which is dust- water- and explosion-proof. Also on display will be other products, such as the Handy governor and the Handy perfection oil-bath air cleaner and Norma ball bearings, all used extensively by the oil industry. This exhibit will not only show material used in the oil fields, but also such material as is used after the oil is ready for use in various engines.

Globe Steel Tubes Co.

Milwaukee, Wis.

Booths 934, 936, 938

The Globe Steel Tubes Co. will exhibit samples of Globe seamless steel tubes, such as are used in stills, condensers, heat-exchangers, boilers, etc.; samples of Globe seamless stainless tubing, both pickled and polished surfaces, and samples illustrating the Ihrigizing process for impregnating surfaces of ordinary steel, providing a case highly resistant to corrosion, wear and high temperatures.

Goodall Rubber Co.

Booths 750, 752

In attendance

H. BARNARD — D. D. COOPER
P. O. DAVANT

The Goodall Rubber Co., Houston, will show a complete line of mechanical rubber goods. Goodall Long-Life rotary hose for all types of drilling, and the new

Barney stemless, clampless rotary hose coupling will be features. Also on display will be Goodall steam hose; Goodall Newtype cord and Newtype Synplastic hose for petroleum marketing service, including hose for curb pump, compressed air, grease, and water. Flexitallic gaskets, for which Goodall is distributor, will be shown.

Goodall Semi-Metallic Hose & Manufacturing Co.

Philadelphia, Pa.

Booths 533, 535

In attendance

J. E. BOBO — S. J. YERKES
R. B. GOODALL

The Goodall Semi-Metallic Hose & Manufacturing Co. will display various types of high-pressure armored hose. Emphasis will be placed on G.S.M. rotary hose in three separate types, styles 500, 600 and 700. The feature will be style 600 with enlarged ends, which hose gives full flow throughout the entire length.

G.S.M. is the easily recognized completely armored rotary hose, having on its exterior a continuous ball-joint steel armor acting to resist external abrasion or abuse and carrying the greater portion of radial pressures of the hose. The armor protects the vital steel structural members within. This principle of construction enables an absolute balance of endwise radial pressures to be secured. An illustration of this fact, the manufacturers say, is that G.S.M. rotary hose under 7,000 pounds per square inch pressure has an elongation of only one-quarter of 1 per cent.

Gray Tool Co.

Booths 444, 446, 448, 545, 547, 549

In attendance

R. A. MUELLER — ROGER SMITH
C. E. RICHARDS — RAY E. KOLLAR
J. D. ISAACKS — E. F. HILL
C. E. HEATH — JOHN LEMLEY
J. R. YANCEY

The exhibit of the Gray Tool Co., Houston, will include a complete showing of the A.S.A. series systems of well control and related parts. In addition, the company's line of rotary drilling and fishing tools will be shown. These include the Gray swivels, release spears, dog-type overshots, slip-sockets, wall-hooks, back-up tools and float-valves.

Gresham Sales Co.

Houston, Tex.

Booth 644

Grove Regulator Co.

Oakland, Calif.

Booth 644

In attendance

LIEUT. M. H. GROVE — A. T. DONNELLY
V. B. GRESHAM — W. A. HAMMANN
G. A. CLARKE

The Grove Regulator Co. will have on exhibition cutaway models of the model G Grove universal pressure-reducing regulator, its new model G-1 pressure-reducing regulator, and its improved model DK back-pressure regulator. In addition it will show a new application of the Grove regulator. Working demonstrations of the various models will be given.

The Guiberson Corp.

Dallas, Tex.

Booths 139, 141, 458, 460, 561

In attendance

S. A. GUIBERSON — H. M. HASELTINE
W. R. GUIBERSON — ALLEN GUIBERSON
ALBERT PRANGER
GORDON G. GUIBERSON

One of the booths of the Guiberson Corp. will be devoted to equipment used in the new method of drilling in under controlled pressure. The type A friction kelly drive will be set up on the D oil-saver as it is used

Tubing-spider

on wells. The type B collapsible friction kelly drive will be set up with the C drilling-head, the detachable coupling, and the D oil-saver. The small collapsible kelly drive will be set up with the B1 oil saver, showing this equipment as it is used in clean-out work. The C2, D, and B1 oil-savers will also be shown so that the inside can readily be seen as to the type of rubber con-

struction in the oil-saver, etc. The float-valve and the casing-tong will also be exhibited.

Another booth will be devoted to production tools, including the type E tubing-catcher shown with and without anchor, and the B tubing-catcher with and without anchor. There is to be a hydraulically operated rack where tubing-catchers can be operated to show them working. In this booth will also be shown three

Type E tubing-catcher *Type G-1 control-head packer* *Type K swab*

weights of floor-blocks and two spiders, the medium and heavy types; the sucker-rod-stripper, the C tubing-stripper, the tubing-tong and the casing-tong.

In the third booth will be shown control head packers, spiral tubing-packer, spiral casing-packer, bottom-hole plug, collapsible core-plug, wash down-plug and rope sockets.

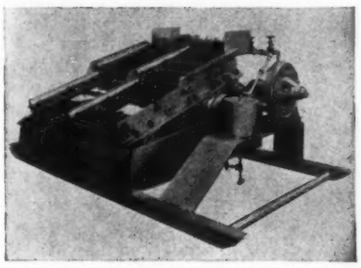
Gulf Engineers, Inc.

Booths 324, 326, 425, 427

In attendance

E. F. GOGGINS C. A. MUNCEY
P. B. HAMILTON

Material shown by Gulf Engineers, Inc., Houston, will include the Keil shale-shaker, featuring step-deck



Keil shale-shaker

construction, greater mud-handling capacity and four-section screen-cloths, permitting economical replacement of screen-cloths when necessary. There are no cams, springs or other loose moving parts, all resilient parts being made of rubber.

Also on display will be the Chiksan all-steel rotary drilling-hose, all-metal dock loading-hose, together with heavy-duty swivel-joints for cementing service. The Chiksan three-way disc bit and heavy-duty reamer will be shown as well as the new Chiksan heavy-duty reamer, circulating head, and mud-gun joint; the Varco heat-treated and ground slushpump liners and piston-rods; the Lamb solid slushpump piston, and a representative selection of the Volz steam specialties.

Gulf Publishing Co.

Houston, Tex.

Booths 624, 725

Halliburton Oil Well Cementing Co.

Duncan, Okla.

Booths 132, 134, 136, 138, 140, 237, 239, 241

The Halliburton Oil Well Cementing Co. will display the following products:

Multiple-stage cementing devices, a modern necessity in deep-well cementing, making it unnecessary to pump all the cement down the entire length of the casing and up behind the casing; reduce by about 50 per cent the pump pressure required to place the cement; protect shallow production formations behind the casing.

Full-hole cementing devices, providing a modern method of cementing combination strings; consist of a blank string of casing, on the lower end of which is a perforated section, or screen, of the same diameter as the blank casing. It means that a full-sized hole is drilled into the producing sand, a screen or perforated liner of the same size as the casing is run on the bottom of the casing, circulation is established down the entire length of both the blank and perforated sections of the combination string to remove cavings, cuttings and heavy muck from behind the screen and the casing is cemented above the screen, all in one continuous operation. It provides up to 30 per cent more screen area, 60 per cent more drainage surface and allows 30 to 50 per cent more core recovery.

Cement wash-pipe lining for screen or perforated liners may be used with any screen or perforated liner or in the perforated section of a combination string. The lining is easily drilled out of the perforated section after it has served its purpose.

Floating equipment, including float-collars, guide-shoes and float-shoes for use with all makes of casing and casing-threads. The designs provide ample floating strength for even the longest strings of casing, efficient guiding of the shoe, minimum interference with establishing circulation after the casing is landed, minimum interference with the flow of cement, coordinated design with cementing plugs, and drilling-out ease.

Formation testing devices, for obtaining a test for the productivity of formations while drilling a well, without setting a string of casing and bailing; also used for making water-shutoff tests in casing after cementing.

Measuring devices, a complete line from the standard type to the heavy-duty type.

Four-wheel drive trucks; the success of the four-wheel drive principle in getting around difficult roads in the oil fields is a feature of Halliburton oil-field service; serviced by the Halliburton Oil Well Cementing Co.

Happy Belting Co.

Tulsa, Okla.

Space 1007 outside

In attendance

A. F. NIXON P. E. MAHAFFEY
ROBERT MEEK

The Happy Belting Co. will exhibit a Happy flexible pumping unit, run by a multiple cylinder engine. It will also exhibit a Durnell backside crank unit which will be run off of the Happy flexible unit. The company plans to exhibit also a Happy Timken-equipped countershaft, a Happy Medart ball-bearing equipped clutch, outboard bearings and pulleys, a Happy No. 7 idler, Happy pumping-cups, Happy balls and seats, Happy belts, Dayton V-belts, and a Happy demountable rim sheave.

Harnischfeger Corp.

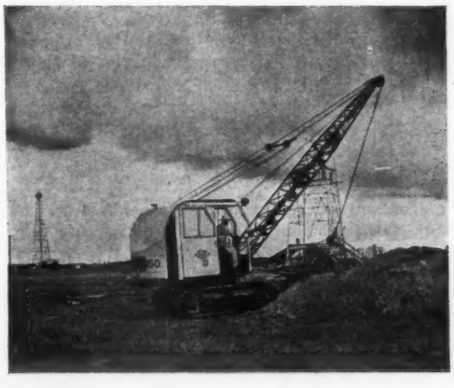
Milwaukee, Wis.

Spaces 1222, 1224, 1226, 1228, 1230 outside

In attendance

J. H. ENOCHS WAYNE GREEN
G. K. WOODLING J. P. MORRISSEY

Material handling and welding will be featured in the Harnischfeger Corp. exhibit. The P&H model 150 dragline with half-yard dragline bucket will be shown,



equipped with a 30-foot boom and 18-inch corduroy shoes. Its salient features include all-welded construction, tractor-type crawlers, etc., that have made it well known in the oil fields.

The wide line of P&H electric hoists will be represented by an operating display of a type R-1, one-ton hoist with push-button variable-speed control and a Zip-lift hoist of 500-pound capacity with push-button control.

A working demonstration of welding as applied to the oil industry will be in operation constantly. P&H-Hansen Smootharc welders will be used as well as Smootharc welding electrodes. A 300-ampere motor-driven portable welder and a 300-ampere Waukesha gas-engine-driven welder mounted on a four-wheel highway trailer will also be shown. This last is especially adaptable for oil field use.

Hazard Wire Rope Division American Chain & Cable Co., Inc.

Wilkes-Barre, Pa.

Houston Oil Field Material Co. exhibit
Booths 150, 152, 154, 156, 158, 160, 251, 253, 255, 257, 259, 261

Hercules Motor Corp.

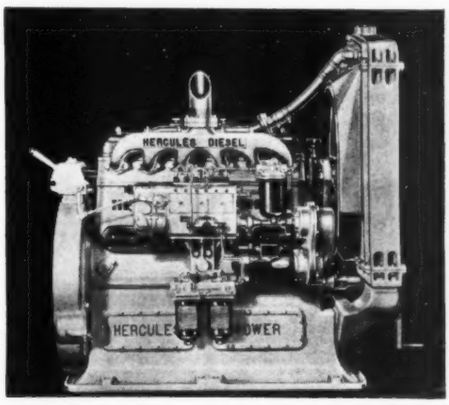
Canton, Ohio

Space 1000-B outside and Booths 438, 440, 539, 541

In attendance

A. B. WEHLING FRED C. GOLDSMITH
R. J. SCOTT

The Hercules Motors Corp. will exhibit its complete line of heavy-duty industrial power units arranged for operation on gasoline, natural gas and kerosene, and



also its modern heavy-duty, four- and six-cylinder diesel units. Several diesel and several natural gas units will be operating but perhaps of greatest interest will be the new DOOC 4 by 4½-inch four-cylinder diesel unit, which will be on display for the first time. This unit develops 65 corrected horsepower at its maximum speed of 2,600 r.p.m. The maximum speed for continuous service will be 1,800 r.p.m.

The DOO series is built in two bores, the DOOC and the DOOB 3¾ by 4½-inch four-cylinder unit. The latter will develop 57 corrected horsepower at the maximum speed of 2,600 r.p.m.

Other units of interest to the oil operators will be the JXC low fire hazard unit, the RXB low fire hazard unit and the HXB special closed-type power unit, all of which are arranged for oil-field applications. The low fire hazard units are equipped with water-cooled exhaust manifolds, special protected ignition systems, gas valves, heavy-duty oil-type air-cleaners, telegraph controls, heavy-duty clutch power takeoff assemblies, base type oilpans with large oilsump capacities and heavy-duty radiators.

Other diesel engines which will be on display include the DHXB 5 by 6-inch six-cylinder unit, the DRXB 4⅜ by 5¼-inch six-cylinder unit and the DJXC 3¾ by 4½-inch six-cylinder diesel unit.

Hills-McCanna Co.

Chicago, Ill.

Booths 228, 230

Hewitt Rubber Corp.

Buffalo, N. Y.

Norvell-Wilder Supply Co. exhibit

Booths 104, 106, 108, 110, 112, 114, 116, 118, 120, 205, 207, 209, 211, 213, 215, 217, 219, 221

In attendance

L. D. BIGELOW — C. G. TRAVERS
H. C. PATTERSON — F. H. DICKINSON
BRYAN FRERE

The Hewitt Rubber Corp. exhibit will be a novel and educational display of rubber products suitable for the oil industry as well as for industrial use. The display consists of movable prisms on which are shown colored photographic pictures of typical field installations, along with the actual products incident to that specific use.

Hopper Machine Works

Bakersfield, Calif.

Booths 336, 338, 340

A. C. Horn Co.

Houston, Tex.

Booths 408, 410

Houston Oil Field Material Co.

Houston, Tex.

Booths 150, 152, 154, 156, 158, 160, 251, 253, 255, 257, 259, 261

Space 1010-A outside

The Houston Oil Field Material Co. will display the complete line of Homco specialty products, in cooperation with the following exhibitors:

The Wheland Co.—Rigs. Lucey Boiler & Manufacturing Co.—Boilers. Weber Engine Co.—Engines. Standard Brake Lining Co.—Brake lining. Crane Co.—Valves and fittings. Hazard Wire Rope Co.—Wire rope. Hinderliter Tool Co.—Casingheads and tooljoints. Technical Oil Tool Corp.—Well surveying. Kane Boiler Works.—Welded pipe. Babcock & Wilson Tube Co.—Boilertubes. Mid-Continent Mud Co.—Drilling-muds. Hinsdale Tool Co.—Nonsparking tools. Emsco Screen Pipe Co.—Screen. Texas Steel Co.—Pumping units. In its outside exhibit. Homco will show, in operation, the new pumping unit especially built for Homco by the Texas Steel Co., powered by the Weber Engine Co.

Houston Slush Pump Repair Co.

Houston, Tex.

Booth 260

Humble Oil & Refining Co.

Houston, Tex.

Booths 5, 7

In attendance

FRED ROYSE — T. J. BREWER
JACK SHANNON — ED HOUSE
O. L. OLSEN — R. B. CAMPBELL
R. T. LAMB — H. L. BORDEN
R. C. WERNER

The Humble Oil & Refining Co. will feature petroleum products for the oil industry. Humble Rust-Ban, Thredkote, paints, lubricants, and greases will be attractively displayed together with pictorial examples of the products in use.

The booth will be modern in character with a small tower supporting a spectacularly lighted Humble oval. The product displays will be arranged against a photomontage background sweeping in a graceful curve from the tower around to the modern end feature. Overhanging the display window will be an indirectly lighted chromium marquee with illuminuated setbacks above it. The use of modern materials, big photographic enlargements, unusual lighting arrangements and movement will add to the general interest, while the instructive information included in the demonstrated uses of the products should be of interest to the oil man.

Hunt Tool Co.

Houston, Tex.

Booths 630, 632

In attendance

T. N. HUNT — U. V. SEALES

The Hunt Tool Co. will feature the Hunt wire-line core barrel, which permits the recovery of larger cores by the wire-line method due to the fact that the barrel itself serves only as a core-retainer and is not a part of the cutting member. The barrel wall is thinner, thus having considerably larger inside diameter. The cutting member of the core-head is integral with the head instead of the barrel, the latter merely seating in the head and in the drill-collar sub.

Also displayed will be the complete line of Hunt bits, more than 25 types, a type for every class of drilling, and the Hunt core-heads, both hard and formation types.

Hyatt Bearings Division, General Motors Corp.

Newark, N. J.

Booths 704, 706

In attendance

C. L. NEWBY — F. WEBSTER
A. J. SWISLER — J. M. KELLY
L. L. HILL — H. K. PORTER
H. M. CARROLL

The extensive use of Hyatt roller bearings in oilfield machinery will be shown in the exhibit of the Hyatt Bearings Division, General Motors Corp.

Hydril Co.

Los Angeles, Calif.

Spaces 1126, 1227, 1229, 1231, 1233

In attendance

EARL M. DANIELS — R. E. ENGSTROM
G. E. TYSON

A full size automatic blowout-preventer, set up so that its operation can be observed, will be the central feature of the Hydril Co. display. The use of compressed air as an actuating means enables the exhibitor to simulate the operation of the blowout-preventer on a well where gas pressure is present. The company will show cutaway sections of its various drillpipe joints, including the internal flush, external flush, and internal and external upset types; its joints for casing and tubing, embracing the external upset joint (also known as speed-type joint), and the internal and external flush joint for both casing and tubing. An ingenious operating mechanism will show the screwing and unscrewing action of these joints in such a manner that the contact of the male and female threads may be closely observed.

The display will include a pictorial representation of the Hydril system of controlled pressure completion. The picture will occupy nearly an entire wall of the booth and field engineers will discuss the operation of this system.

A wide variety of back-pressure valves, drillpipe- and casing-plugs, safety joints, pulling-in equipment and other control mechanism will be shown.

Hughes Tool Co.

Houston, Tex.

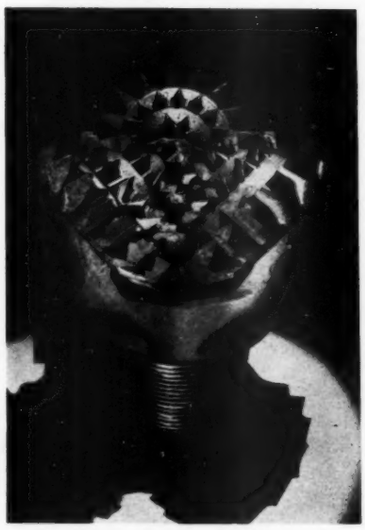
Booths 524, 526, 528, 530, 625, 627, 629, 631

Practically all products of the Hughes Tool Co. will be on parade in an interesting and comprehensive manner, featuring recent improvements and developments, sectioned and illustrated so that interior construction and workmanship may be viewed to best advantage. Working models will be on display.

Products exhibited will include rock-bits, core-bits, tooljoints, reamers, drill-collars, chokes, tubing- and flow-heads, valves and fittings, complete assembled christmas trees, plunger lift, and other specialized oil industry tools.

A staff of attendants will be present to explain and demonstrate improved features of Hughes tools. There will be representatives of both the sales and engineering departments.

Core-bit



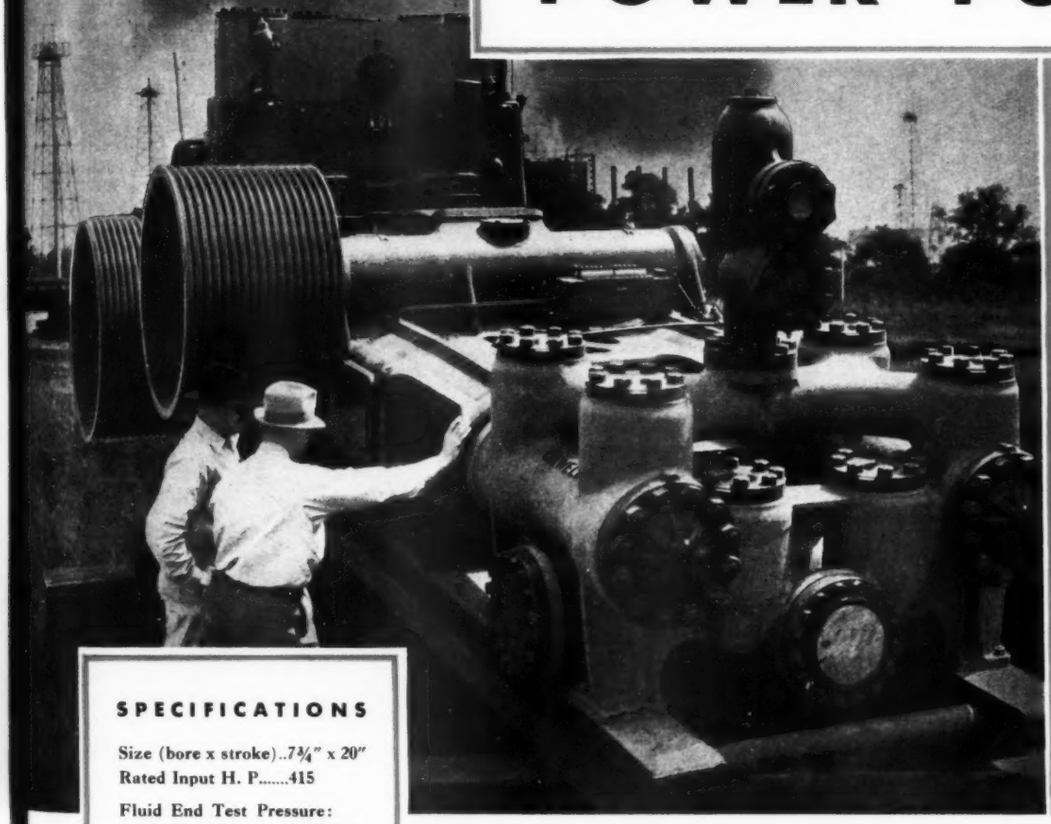
Rock-bit

Tooljoint

MODERNIZE YOUR ROTARY DRILLING RIGS

Announcing-

NO. 20-P POWER PUMP



The largest and most powerful slush pump in the oil fields

SPECIFICATIONS

Size (bore x stroke)..7¼" x 20"
Rated Input H. P.....415

Fluid End Test Pressure:
Discharge .....4000 lb.
Suction .....2500 lb.

Maximum Working Pressure:
Discharge .....2500 lb.
Suction .....1500 lb.

DIAMOND 1862 OILWELL 1937 JUBILEE

75 years of progress

A MAJOR ADDITION TO THE MOST COMPLETE LINE OF POWER SLUSH PUMPS

12-P - - - - - 5" x 12"
612-P - - - - 6" x 12"
16-P - - - - - 6" x 16"
14-P - - - - 7¼" x 14"
7-P - - - - 7¼" x 18"
NOW 20-P - - - - - - - 7¼" x 20"

OIL WELL SUPPLY COMPANY

Branch Stores in All Oil Fields
Subsidiary of United States Steel Corporation

"OILWELL"

Industrial-Scientific Supply Co.

Booth 249

In attendance

A. J. FLEIG — E. H. TRIPHAUS
L. G. MARSH — B. H. WILSON
R. E. O'NEILL — F. W. WELLBORN

The Industrial-Scientific Supply Co., Fort Worth and Houston, Tex., will exhibit a full line of Taylor instruments for oil refining and general petroleum applications.

The new Taylor Fulscope Micromax controller will be on display with a working model of this new air-operated potentiometer controller which combines the outstanding values of the Taylor Fulscope controller and the electrically-operated Micromax, for those applications where smooth proportional valve action is imperative and the potentiometer principle of temperature measurement is preferred.

The standard Taylor Fulscope recording controller for temperature, pressure, flow and liquid level will be shown, with its universal sensitivity adjuster. For applications where a record is not desired, the Taylor indicating Fulscope controller will be demonstrated. In conjunction with these is the Taylor Dubl-Response controller for difficult control problems where time-lag and load-change require a positive reset mechanism.

The Taylor Evenaction Motosteel valve of all-welded

steel construction which has won popularity in the field because of its great strength and lighter weight, will be on display with the Taylor Valv-Precisor which positions the diaphragm valve disc precisely in proportion to the air pressure changes from the controller.

Ingersoll-Rand Co.

Phillipsburg, N. Y.

Browning-Ferris Machinery Co. exhibit
Spaces 1024, 1025, 1026, 1027 outside

In attendance

F. W. SULTAN, JR. — W. F. DALTON
C. W. SCOTT — W. H. LEE
GILES BRAYDEN — K. P. HURLEY
F. J. WETZEL — W. M. GEBO
JOHN ROGERS

International Derrick & Equipment Co.

Columbus, Ohio

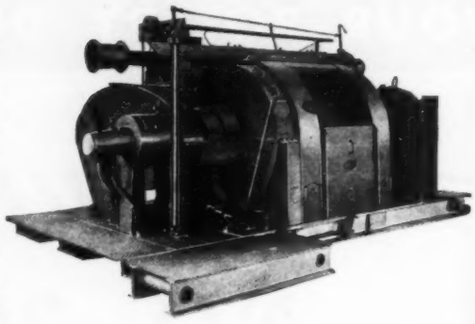
Space 1039 outside

The International Derrick & Equipment Co., Beaumont, Tex., and Columbus, Ohio, will exhibit a complete line of rotary drilling equipment and also geared pumping machines operated under power during the exhibit.

The rotary drilling equipment is manufactured at the Beaumont plant. It is being used in many fields, but is particularly popular in the Gulf Coast areas. This exhibit consists of a Big Giant drawworks, Little Giant drawworks, 27½-inch bobtail oilbath rotary, 27-inch make-and-break rotary, 23-inch bobtail oilbath rotary, superduty crownblock, superduty travelingblock, 6-inch swivel and 8-inch swivel.

The geared pumping machines are manufactured at 8 plants located at various points in the United States. The main plant is in Columbus, Ohio. The units exhibited are representative of a full line of geared pumping machines and central power equipment, hundreds of installations of which have been in service for many years in the various producing fields.

A light self-contained floor-type machine will be displayed. This machine is mounted on steel skids and is equipped with a gearbox, twin cranks with rotary



counterbalances, brake and flywheel, V-belt drive, prime mover, twin pitmans with upper bronze and lower roller-type bearings, tripod samson post with oilbath pivoted equalizing crossbeam hinged-type mulehead and double-cable beam-hanger.

A vertical geared power will also be shown. This outfit consists of a gearbox with front and back crank.

International Equipment Co.

Boston, Mass.

Booths 344, 346

International Harvester Co.

Chicago, Ill.

Browning-Ferris Machinery Co. exhibit
Spaces 1024, 1025, 1026, 1027 outside

The International Nickel Co., Inc.

New York, N. Y.

Booths 109, 111, 113

In attendance

J. S. VANICK — B. B. MORTON
A. G. ZIMA — E. A. TURNER
S. J. WILDWOOD — H. S. LEWIS

Since the International Nickel Co., Inc., manufactures no equipment used in the oil industry, its display will be confined probably to samples of pieces available in monel, pure nickel and Inconel, with a few samples of nickel cast-iron and nickel-steel equipment. For example, a nickel-steel sucker-rod, nickel-plated, which represents a new development now in its infancy, probably will be shown; also samples of nickel-alloy cast-iron bubble-caps and similar refinery castings.

Jaeger Machine Co.

Columbus, Ohio

Browning-Ferris Machinery Co. exhibit
Spaces 1024, 1025, 1026, 1027 outside

Jefferson Union Co.

Lexington, Mass.

Booth 118

Norvell-Wilder Supply Co. exhibit

In attendance

C. WALTER HELTZEN

The Jefferson Union Co. will exhibit malleable unions and flanged unions.

The Jeffrey Manufacturing Co.

Columbus, Ohio

Spaces 1214, 1216, 1218 outside

In attendance

T. P. BURKE — N. E. SALSICH
C. R. HELLER — L. R. BRILL
C. I. LATTIG

The Jeffrey Manufacturing Co. will exhibit the Jeffrey-Traylor "Waytrol" feeder, Jeffrey-Traylor Conveyanscreen, Jeffrey oil-well chains, Jeffrey belt-idler, Jeffrey transmission machinery, Jeffrey shale-shaker (or mud-screen).

Jenkins Bros.

New York

Booths 233, 235

In attendance

H. J. BARNSLEY — W. BOYCE WHITE
F. J. KLEMANN

Jenkins Bros. will exhibit a complete line of bronze, iron and steel valves that meet practically every valve requirement throughout the petroleum industry. Among

the many types and patterns on display will be the iron-body double-disc parallel-seat gate valves in standard, medium and extra-heavy patterns; series 15, 30, 40, and 60 cast steel, globe, angle and gate valves; iron-body solid-wedge gate valves in standard, medium and extra-heavy patterns; and a complete line of small-size bronze valves including globes, angles, gate, rapid-action valves and others of interest to petroleum engineers.

The hundreds of valves will be displayed with an electrically illuminated modern background. Two large hand-painted murals will add to the attractiveness of the exhibit.

Johns-Manville

New York, N. Y.

Booths 618-620

In attendance

J. S. CARROLL — J. A. O'BRIEN
F. W. HODSON — T. E. GOSSETT
S. L. ORGAN — L. H. MAIER
T. C. GREENWOOD

A wide variety of products which serve the oil industry in a number of ways will be featured in the

Johns-Manville exhibit. Included will be insulations and refractories, brake-linings, packings and materials for the protection of underground pipe lines.

Other J-M products to be shown are Celite filter-aids, used in the clarification of lubricating oils; Transite asbestos-cement pipe for salt-water disposal; and corrugated and flat Transite asbestos sheets for industrial roofing and siding, and for furnace casings.

Johnston Oil Field Service Corp.

Houston, Tex.

Spaces 1317, 1319 outside

In attendance

BLAINE JOHNSTON — J. L. JOHNSTON
E. C. JOHNSTON — M. O. JOHNSTON
FRANK O'NEILL — W. F. BETTIS

The M. O. Johnston Oil Field Service Corp. will exhibit its complete line of formation-testing tools. A novel feature will be a glass oil well in which will operate a 6-foot model of the Johnston testing tool. The model incorporates the outstanding features of the Johnston tester and clearly shows how each valve functions without twisting or turning the drill-string. It shows the operation of the patented trip-valve which

(Contined on Page 227)

differentiates between drillpipe leaks and actual formation tests; the patented retainer valve, which functions automatically with the lifting of the drillpipe; and the automatic equalizing valve which balances the pressure above and below the packer before it is lifted from the seat, thus freeing the drill-string of excessive lifting strains. Colored liquids are used in the model to show clearly the direction of travel of the formation fluid into the drill-string, and the method of preventing mud from entering the test section.

Jones & Laughlin Steel Corp.

Pittsburgh, Pa.

Booths 564, 664, 665, 666, 765

Centered in the colorful 50-foot background of the Jones & Laughlin Steel Corp. exhibit will be a working model of an open-hearth steel furnace. Built to scale in every detail, this unique model will depict the actual operation of tapping a heat of steel from one of the company's tilting open-hearth furnaces. On either side illuminated murals will present the J & L quality story, "Every Fifth Man Your Man," showing that out of every five men employed in the J & L Seamless Tube Mills, one is an inspector who constantly checks every feature during the manufacture of the pipe for accuracy specifications.

Before this background J & L will exhibit a complete line of its oil-country tubular goods, including specimens of seamless drillpipe, casing, tubing and line pipe, with wall areas cut away to permit close examination of threads and wall thicknesses as well as contour and length of the upset formed on some of the tubular products. In addition, there will be an exhibit of hot-rolled seamless steel boiler-tubes, which are made by an exclusive process wherein the steel is formed into a tube in one continuous operation by a series of forging actions. Displays will also be shown of J & L standard pipe, both seamless and welded, oil containers and cans made of J & L tin mill products, and oil-drums made of sheets rolled on the new J & L $25,000,000 96-inch continuous strip and sheet mill.

The S. M. Jones Co.

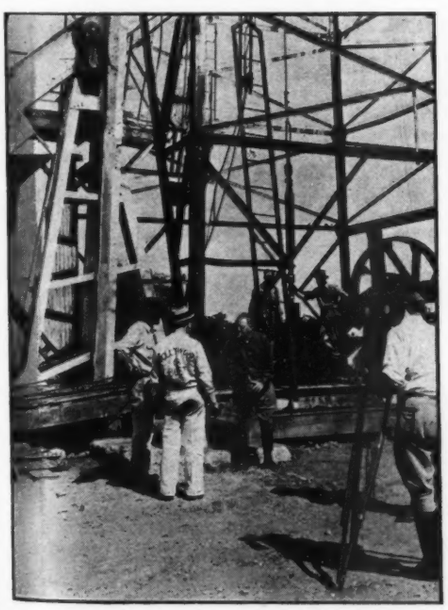
Toledo, Ohio

Spaces 1103, 1105 outside

In attendance

P. C. JONES — H. K. BROWNING
L. J. PUNDT — C. E. BUCHNER, JR.

The feature of the S. M. Jones Co. exhibit will be a continuous motion picture, showing scenes from the new talking picture, "Progress in Sucker-Rods." Interest has been aroused among the many producers and their men who participated in the production of this picture, and the bookings are expected to be heavy. The purpose of this short preview is to give visitors an idea of the value of the talking picture in keeping their men informed regarding the many progressive steps that have been taken in the analysis of pumping wells, the selection of the right sucker-rods to fit the pumping conditions, and the importance of the proper care and handling of sucker-rods in the field. One feature of the talking picture is the introduction of a comedy element in the person of "Rodney," the hitch-hiker, on his way to Hollywood. He illustrates all the wrong ways to handle sucker-rods.



The Joyce-Cridland Co.

Dayton, Ohio

Booths 719-721

In attendance

HUSTON BROWN — HARRY B. BURLOW

The Joyce-Cridland Co. will exhibit a full line of jacks particularly adapted for oil-field service. These will include the Joyce No. 2028 single-acting automatic lowering jack, designated the "Bearcat" because of its all-around adaptability for skidding rigs, moving boilers, etc. It is the pioneer 20-ton jack of this type. There will also be the No. 78 emergency jack, which lifts, pushes or pulls from any angle.

Bearcat

7-ton Liftmaster

The Joyce "Liftmaster" line of hydraulic jacks will be shown in a wide range of sizes and capacities. These are efficient lightweight jacks for use with trucks and rolling stock and general industrial service.

Kargl Aerial Surveys, Inc.

San Angelo, Tex.

Space 1327 outside

Keasbey & Mattison Co.

Ambler, Pa.

Booths 925, 927

In attendance

H. W. DAVIS

The Keasbey & Mattison Co.'s exhibit will give prominence to its packings of different kinds, asbestos-magnesia insulation for oil refiners use and asbestos corrugated sheathing. Photographs will show refinery installations of the asbestos-magnesia insulations, featuring the Hy-Temp combination, said by the company to be efficient to 1,900° F. It is provided in both block and pipe forms. The "Featherweight" magnesia, which is not designed to withstand temperatures higher than 600 degrees, will be shown, especially as applicable in block form for insulation of stills.

Kerotest Manufacturing Co.

Pittsburgh, Pa.

Gray Tool Co. exhibit

Booths 444, 446, 448, 545, 547, 549

In attendance

WALTER G. SWANEY — E. G. MUELLER
J. D. ISAACKS — SHEP MIERS
HARRY C. POTTS — C. C. TREES

The Kerotest Manufacturing Co. will display high-pressure valves, fittings and christmas tree assemblies.

Kennedy Valve Manufacturing Co.

Elmira, N. Y.

Norvell-Wilder Supply Co. exhibit

Booths 104 106, 108, 110, 112, 114, 116, 118, 120, 205, 207, 209, 211, 213, 215, 217, 219, 221

In attendance

CLARENCE H. KENNEDY

The Kennedy Valve Manufacturing Co. will exhibit standard iron-body double-disc gate valve with screwed and flanged ends and nonrising stem, standard iron-body wedge gate valve with screwed ends and nonrising stem, standard iron-body wedge gate valve with outside screw and yoke, 400-pound test iron-body gate valve with flanged ends and outside screw and yoke, 700-pound test iron-body gate valve with screwed and flanged ends and nonrising stem, 1,600-pound test iron-body gate valve with screwed and flanged ends and nonrising stem, bronze valves of various types and for various pressures, standard malleable-iron screwed pipe fittings of various types, standard bronze screwed fittings of various types and standard cast-iron flanged fittings of various types

Kimble Glass Co.

Vineland, N. J.

Booths 344, 346

M. M. Kinley

Booth 265

The exhibit of the M. M. Kinley Co., Houston, will feature a new instrument for determining where casing, tubing or drillpipe may be stuck, where cement has been forced outside of casing or where casing or tubing may be leaking. This instrument is named the underground fluroscope. Other exhibits will include oil-well calipers electrically operated for surveying the inside of oil, gas or water well holes; a wire-line cutter gun, operated through explosives for cutting off a sandline or drilling-line; an appliance of explosives for removing external wrappings from screen pipe.

Kinzbach Tool Co.

Houston, Tex.

Booths 355, 357

In attendance

BOB KINZBACH — H. M. WHEELER
E. B. SCHULZ — E. C. ROPER
FRANK KINZBACH

The Kinzbach Tool Co., Inc., will feature three types of Kinzbach sectional whipstocks, the complete line of Kinzbach milling tools (illustrated here), the Kinzbach pony rod eliminator, the Bowen pressure wire line hookup, the Bowen line-wiper, Bowen overshots and the Kinzbach line of casing-shoes, rotary shoes, taper taps and die-nipples.

Koppers Co.

Pittsburgh, Pa.

Booths 500, 502

In attendance

J. A. WORTHINGTON — E. S. FREEMAN, JR.
W. P. CUNNINGHAM — HARRY NOLAN
BART ALDRIDGE — J. M. FULLER

The background of the Koppers booth will consist of a large "Koppers," followed by the names of four of the affiliated organizations most directly concerned with oil-field business: American Hammered, Bartlett Hayward, Engineering & Construction, and National Lumber & Creosoting.

There will be displayed on the background a chart showing the Koppers Phenolate process, and literature will be distributed covering this process.

The main section of the background will consist of the company's triangular prisms which will make a one-third revolution every 30 seconds. The four prisms when lined up present a surface 4 feet high and about 8½ feet wide. Each prism is 4 feet high and 28 inches wide. The prisms being triangular, one of the surfaces will feature Fast's couplings, showing a cross-section view of a coupling and attractive photographs of installations with simple copy. Another face will feature American Hammered piston rings. Four attractive photographs will be used together with simple copy.

The third panel will feature ring connections used for timber in the under structure of derricks. Actual samples will be on display showing how the rings are used where heavy timbers are bolted together forming a bond stronger than the individual timber.

Seven types of Fast's couplings and piston-rings for all types of oil field applications will be in the display. The rings will include seal rings, oil-control rings, cast-iron-bronze rings and Gold Seal rings.

The Kron Co.

Bridgeport, Conn.

Spaces 1112, 1114-A outside

In attendance

C. C. FORSHEY

The Kron Co. will exhibit two scales, one a Crane scale, the other a portable platform scale.

Kron Crane scales are used for suspension from the hooks of traveling-cranes. They weigh materials en route and thus avoid costly extra handling. As they are of the dial type the weight is shown instantly on the dial. Provision is made for taring off the weight of the slings, etc., so that the net weight is shown on the dial.

Kron portable scales, shown in the illustration, are made in either 3- or 4-wheel mounting and usually in 21 by 29 platform. This is the type to be shown at the show.

Kunkle Valve Co.

Fort Wayne, Ind.

Booths 234, 236

Landis Machine Co.

Waynesboro, Pa.

Booths 551, 553, 555

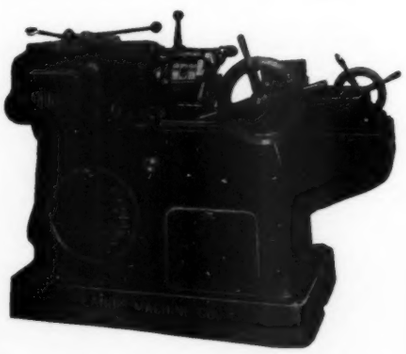
In attendance

C. N. KIRKPATRICK — R. G. MUMMA
J. R. FUNK — ROY STONER

The Landis Machine Co. will exhibit its 13¾-inch receding chaser pipe machine and the Landmaco threading machine. The Landis receding chaser pipe machine has distinctive features to insure extreme accuracy for threads cut on casing, tubing and drill pipe. It will thread all diameters from 4½ inches to 13⅜ inches inclusive and requires only one die head to cover this complete range. It is similar in design to the Landis machines which are used extensively in pipe mills throughout the country for the production threading of casing, tubing and drill pipe. The machine is readily adaptable to "job threading" and the same accuracy attained in the mills, may be reproduced in the field.

The gear box of the Landis receding chaser pipe machine provides nine cutting speeds. The gears are all cut from steel and operate in a continuous oil bath. A continuous flow of oil is also provided to all bearings through the means of a gravity oil feed. Oil is pumped into a filter, located within the gear box where it is distributed by gravity to all bearings.

The Landmaco threading machine, shown in the illustration, is a modernized machine tool designed for



threading rods, bolts, etc., especially designed for accuracy under severe operating conditions. It is built in single and double spindle and is available in several different sizes ranging from one-fourth inch to 1 inch on the 1-inch machine to one-half to 2½ inches on the 2½-inch machine.

A complete display of Landis collapsible taps and die-heads for the internal and external threading of tooljoints, float-collars, etc., will be shown.

Lane-Wells Co.

Los Angeles, Calif.

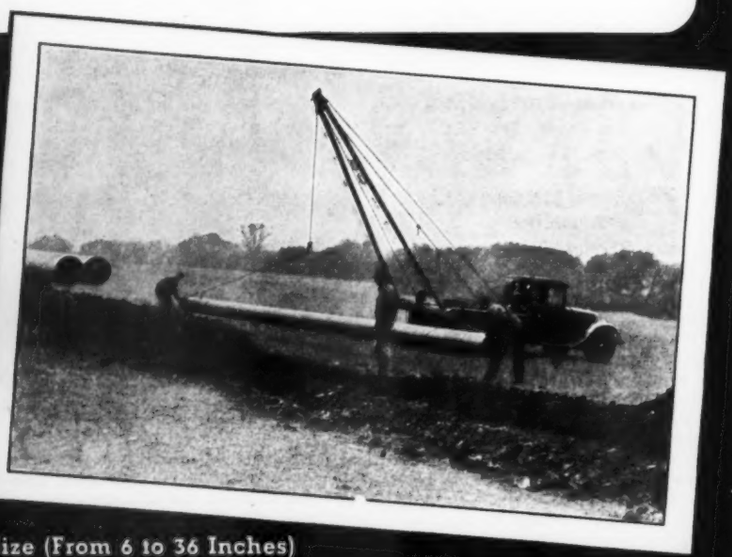
Booths 645, 647

The Lane-Wells Co. is planning an interesting exhibit of its various technical oil field services and

products, featuring the Lane-Wells gun perforator, a modern electrical method of perforating oil well casing

(Continued on Page 232)

Choose the Pipe
THAT FITS YOUR JOB



Any Size (From 6 to 36 Inches)
In Small or Large Quantities

● No wonder oil men in the important fields are turning to Armco Spiral Welded Pipe. Whether you need several hundred feet, or several miles, you can get it promptly, in the right diameter and wall thickness to fit your needs.

Best of all, the simplified construction of Armco "Spiral Welded" reduces handling and installation costs. Your pipe crews can run it faster . . . field weld it more economically. And when you compare its strength and efficiency, you'll find that Armco pipe has everything it takes.

Learn what *real* pipe satisfaction is by ordering Armco "Spiral Welded" for that next gas-gathering line or transmission line. The American Rolling Mill Co., Pipe Sales Division, Middletown, O.; 538 Mayo Bldg., Tulsa, Okla.

ARMCO ARMCO **SPIRAL WELDED PIPE**

FETY!

Shipowners, sailors, and pleasure seekers feel secure along treacherous shores because of the courage, equipment, and proficiency of the coast guard.

Likewise, an increasing majority of oil executives and engineers secure safety by using Smith High Yield Casing. It is engineered and manufactured as a tool of oil well operation, not regarded as mere "tonnage." This A. O. Smith conception of casing has resulted in greater collapse resistance* and greater pull-out strength,* together with important operating economies.*

All of the reasons why major companies use Smith High Yield Casing are fully explained in a special bulletin. Shall we mail you a copy?

* With Smith Casing, because it has greater collapse resistance, you can:

1. Use lighter weight for specified depth and maintain the present safety factor—at less cost.
2. Increase the safety factor at the same depth without increase of weight or cost.
3. Attain greater depths with equal safety.

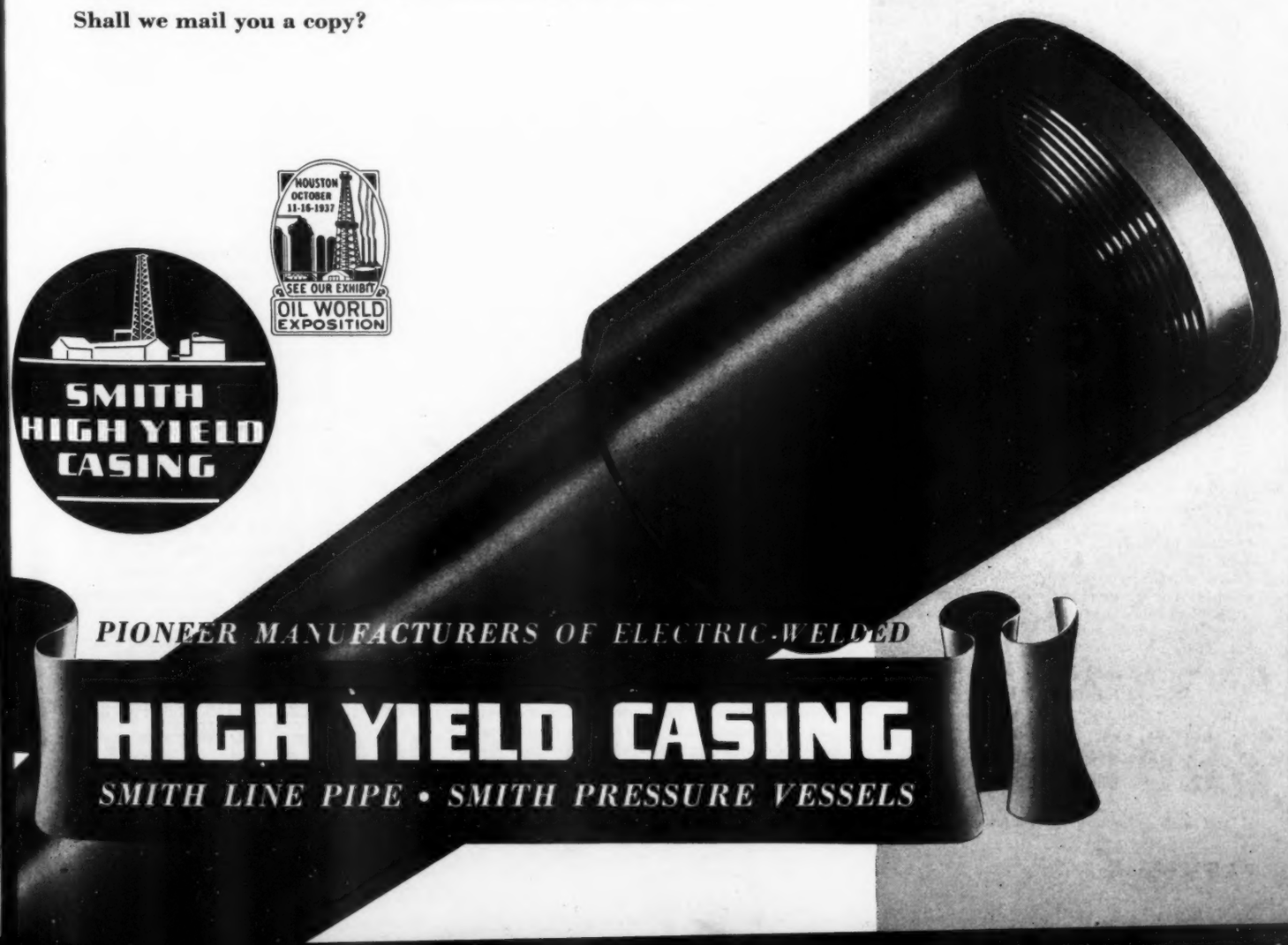
* Because of greater compression strength, you get greater resistance to "pull-out."

* Because threads are more accurate, you get:

1. Greater running speed.
2. Greater make-up speed.

HOUSTON OCTOBER 11-16-1937
SEE OUR EXHIBIT
OIL WORLD EXPOSITION

SMITH HIGH YIELD CASING



PIONEER MANUFACTURERS OF ELECTRIC-WELDED

HIGH YIELD CASING

SMITH LINE PIPE • SMITH PRESSURE VESSELS

and cement by sharp-nosed steel bullets. Moving pictures of the process will be shown along with pictures of the Alexander Anderson well survey and directional control services. The Anderson organization was taken over last spring by Lane-Wells and is now a division of Lane-Wells Co.

In addition to the pictures, working models will be on display. Lane Wells multiple-ring type packers and liner-hangers will be shown.

The Larkin Packer Co., Inc.

Booths 308, 310

The Larkin Packer Co., St. Louis, Mo., will exhibit the following:

Floating and guiding equipment—Larkin concrete float-shoes, float-collars and guide-shoes, with the following features: Forged and heat-treated steel, with 77,000 pounds tensile strength; hob-cut threads; 7-inch square opening; by-passes in water channel to prevent plugging; mechanical, poppet-type valve, machined and lapped, positive acting and absolutely watertight; 240,000 pounds valve back-pressure strength; 8 inches of concrete reinforcing all valves; all concrete parts made of red cement. Larkin Bakelite float-shoes, float-collars and guide-shoes have these same features, except the red cement. In addition, the valves and guides are made of tough, light, easy-to-pulverize fabric Bakelite.

Casing-shoes—Larkin casing-shoes feature the use of the highest-grade steel obtainable; careful forging to correct size, with no seams or welds; proper heat-treating and annealing; accurate machining; cutting of threads on a thread miller.

Swage nipples and bullplugs—Seamless bullplugs are pressed from new flat strip steel, cupped and drawn into plugs, which have neither seams nor welds at side or end. Swaged nipples are forged from new seamless full-weight pipe or casing. Uniform length, shape and outline, ends faced square, perfect threads, beveled for easy starting, inside edges chamfered. In sizes one inch and smaller, Larkin nipples and bullplugs may be had in improved hexagon shape.

Packers—Made from rubber of superior quality; lead seal "J" tools made entirely of seamless steel; Larkin "Hevi-Duty" spiders made in either solid or split type; casing-heads made of highest grade cast steel obtainable, equipped with four tie-downs and two 3-inch outlets; forged with accurately machined dies and 80 per cent of the circumference of pipe contacted by the clamp.

Layne & Bowler Co.

Houston, Tex.

Booths 459, 461

The Layne & Bowler Co. will display its complete line of screens, packers, set shoes and other specialized oil-industry tools. The display will be built around a turntable on which will be mounted pieces of wire-wrapped screen, showing the various kinds of wire used on the screen. Another feature will be a display of the various pipe perforations available in Layne screens.

The display will be in charge of capable sales representatives who will explain and demonstrate the improvements made on Layne & Bowler equipment during the past year.

Lebanon Steel Foundry

Spaces 1405, 1407

In attendance

W. H. WORRILOW — A. J. McDONALD
P. E. GERHARD — C. H. FOLWELL, Jr.

The Lebanon Steel Foundry, Lebanon, Pa., will exhibit regulating-valve parts, gas-meter parts, gate- and globe-valve bodies of various descriptions, pump-casings, and other pump parts, flow-line headers and return-bends for stills, pipe line couplings, drill-bits, casing-slips, etc.

These devices are made from either the company's regular Circle-L normal carbon steel; Circle L-10, a 5 per cent chromium steel with .50 molybdenum, or Circle L-5, a chromium-nickel-molybdenum steel.

Leece Neville Co.

Cleveland, Ohio

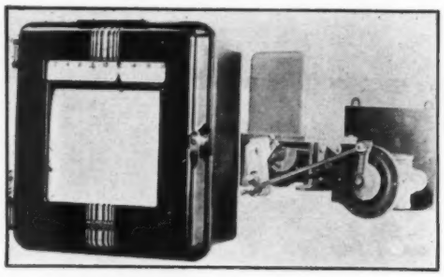
Spaces 1332, 1433 outside

Leeds & Northrup Co.

Philadelphia, Pa.

Booth 426

The Leeds & Northrup Co. will feature its Micromax electric control. This automatic control, completely engineered and manufactured by L&N and used extensively on temperature-control problems, will be in operation to show a new method of temperature control for multiple-hearth clay-burning furnaces. By using a Rayotube sighted on the material in the furnace (rather than the usual thermocouple), control is obtained directly from the temperature of the clay.



In addition a cabinet-mounted L&N temperature-indicator, with switches; a multiple-point, multicolor Micromax temperature-recorder and several portable L&N measuring instruments will be demonstrated.

A. Leschen & Sons Rope Co.

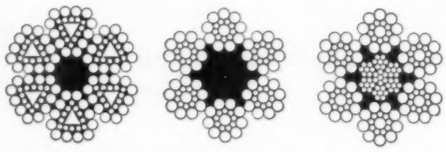
Booth 217

Norvell-Wilder Supply Co. exhibit

In attendance

W. C. HENNING — L. E. DRESSLER
L. W. WEYLER — E. E. LAMBERT

The exhibit of the A. Leschen & Sons Rope Co., St. Louis, Mo., will include a complete line of wire-rope samples covering the different types it manufactures, for the many uses encountered in the oil and gas fields, including its well-known "Hercules" (Red-Strand) rotary lines, and "California Special" drilling lines for use on cable-tool rigs.



Flattened strand, hemp center — *Round strand, hemp center* — *Round strand, wire-rope center*

The illustrations show three constructions of Leschen's "Hercules" rotary lines. All can be supplied in either standard or preformed types. Samples of these and other Leschen lines will be on display.

M. J. Lewis Oil Well Service

Houston, Tex.

Space 1208 outside

In attendance

M. J. LEWIS — ROSS BASSINGER
JOE GATES — C. W. BARNES
CLAUDE GRISSOM — LEWIS MUNSEY
RALPH WOODS — CHICK HUNTER
GEORGE MATTER — REEVES JORDEN
JOHN S. COCHRAN — WILLIAM CLARK
MACK STANDRIDGE — CARL CAWTHON
RALPH WARREN — L. T. HANSARD
LESLIE WOODYARD — BILL ROGERS
J. M. HOOTON — RALPH SWINEY
C. A. WILLIAMS

The M. J. Lewis Oil Well Service will exhibit directional drilling tools, featuring the Lewis knuckle joint for open-hole deflecting of all kinds, and the associate tools used for directional work. The knuckle joint is designed to enable the operator to change the course of a well, directing it toward any predetermined point from either bottom-hole or cement plug. Tools used in conjunction with the knuckle joint consist of diamond-point bit for drilling in formation; rotary shoe for deflection from cement plug; follow-up bit, used to continue curved hole started by knuckle joint; pilot reaming-bit, to enlarge deflected hole to gauge; drag reamer, used in smoothing walls of hole; wipe reamer, used to build up drift angle; six-bladed knuckle joint reamer, used in reaming hole to accommodate the tool itself.

In addition to the tools used in its directional work the company will show the new Tarwin bit which it is preparing to introduce in the Mid-Continent and the Gulf Coast. This bit has been in use for several months on the West Coast. In a recent Gulf Coast test the bit, which is of the revolving geared cutter type, demonstrated its ability not only to make a great deal of hole, but to straighten it while doing so. It is said to promise wide usage in all types of formation.

Lincoln Electric Co.

Cleveland, Ohio

Booths 735, 737, 739

Link-Belt Co.

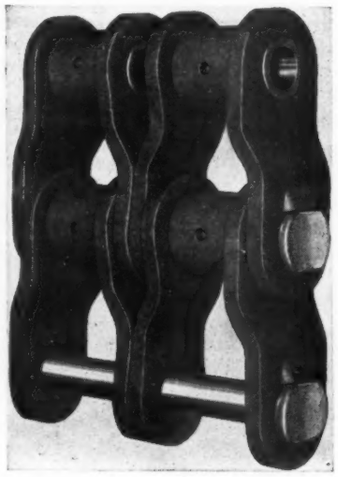
Booths 416, 418, 420

In attendance

A. H. BOIKE — FRED WALLACE
W. H. ABELE — ROBERT HORTON
R. C. BROWN — C. R. WEISS
C. W. SPALDING — F. S. O'NEIL
H. L. STRUBE

The Link-Belt Co., Chicago, will show a Link-Belt mud-screen in operation, an operating chain-drive unit incorporating the various types of chains used on drilling rigs. The unit will be so arranged that any one of the drives can be operated separately or all at a time.

A complete line of Link-Belt rotary drilling-chains, silent chains and roller chains will be displayed on a



panel, and popular sizes of power-transmission items used by the oil industry will be displayed.

Brilliantly illuminuated pictures of various installations will form part of the background. The color scheme and the entire arrangement is expected to make an unusually attractive display.

Lone Star Cement Corp.

Dallas, Tex.

Booth 748

In attendance

J. E. MIFFLIN — H. A. WILLIAMS
J. B. ROBERTS — E. E. KNOTT
W. W. SIMPSON

The Lone Star Cement Corp. has been conducting and is continuing to conduct laboratory and field research on the use of portland cements in the cementing of oil-well casing, reconditioning of wells, plug-back and squeeze jobs. Its exhibit will be built around some of the results obtained in this connection.

Louis Allis Co.

Milwaukee, Wis.

Brance-Krachy Co. exhibit

Spaces 1122, 1124, 1223, 1225 outside

Lucey Boiler & Manufacturing Corp.

Chattanooga, Tenn.

Houston Oil Field Material Co. exhibit

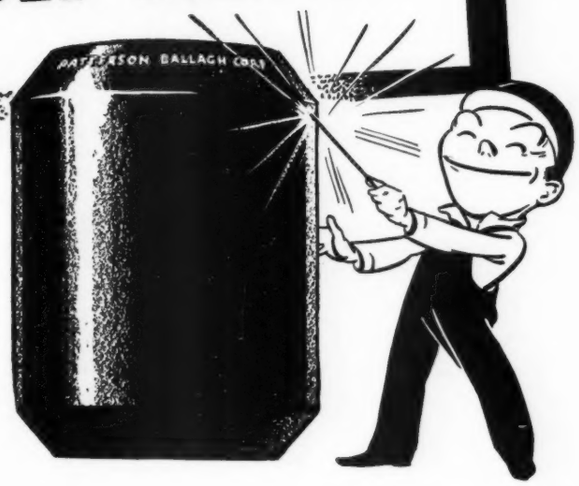
Booths 150, 152, 154, 156, 158, 160, 251, 253, 255, 257, 259, 261

The Lufkin Rule Co.

Saginaw, Mich.

Spaces 1100, 1201 outside

. . . ADD YEARS TO THE LIFE OF THE CASING IN YOUR WELL



AT BOOTH 1211, HOUSTON OIL SHOW

Expander Tool

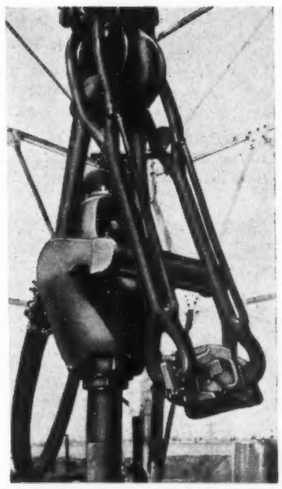
Fully patented under United States Patent 1,965,878. This tool is available in all oil fields and is offered exclusively by Patterson-Ballagh for use in applying protectors.

• In rotary drilling P-B products save time and money

For nearly 10 years the Patterson-Ballagh Corporation has been manufacturing casing protectors of the design that today is accepted as standard throughout the oil industry. These protectors are outstanding for their unusual wear resistant characteristics and strength. As a result millions of pounds have been made in Patterson-Ballagh's modern factory devoted exclusively to this product, and Patterson-Ballagh has from time to time added new items to their line. In these new products is used the same quality of rubber which has established a reputation in their casing protectors. The line spooler, the swivel bumper, and the mud gun, with its rubber-lined jet, are new members of the P-B family and are all offered under the same guarantee of quality that goes with every P-B casing protector.

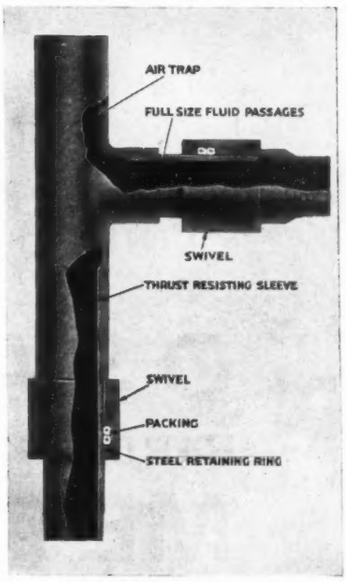
PATTERSON-BALLAGH CORPORATION

Plant and General Offices:
1900 East 65th Street, Los Angeles, California
Mid-Continent Office: 1507 Maury Street, Houston, Texas
New York Office: 39 Cortlandt Street, New York City
Stocks and Field Service in All Principal Oil Fields of the United States.



SWIVEL BAIL PROTECTOR

WIRE LINE SPOOLER



SAFETY MUD GUN

PATTERSON-BALLAGH PROTECTORS

"The original Tubing Protector"

Lufkin Foundry & Machine Co.

Lufkin, Tex.

Space 1012-A outside

In attendance

C. B. EDWARDS

The Lufkin Foundry & Machine Co. will feature the Lufkin long-stroke unit. This rugged and compact unit offers many practical advantages for long-stroke pumping and for installation on derrick floor or over water where foundation expense is a consideration. In general the chief characteristics of the Lufkin long-stroke units are: Wide deep base, making unit completely self-contained; four-legged samson-post of the most rigid design; suitable walking-beam, with duplicate heads at each end of beam; absolutely straight-line pumping motion; strokes of 40-, 60-, 80-, and 120-inch, with speeds from 10 to 20 strokes per minute possible.

These units are equipped with No. 41 or No. 51 double reduction gears and weigh approximately 30,000 pounds.

The Lunkenheimer Co.

Cincinnati, Ohio

Booths 208, 210

In attendance

HARRY BURDORF JOS. WALDECK
JOS. A. BIRKHEAD M. N. STICKEL

The Lunkenheimer Co. exhibit will include a complete line of bronze, iron and steel valves, boiler mountings, lubricating devices and other specialties for oil-field refinery service.

Featured will be the new line of bronze globe, gate and check valves rated at 350 pounds SP and 1,000 pounds GLP for oil-well drilling operations and high-pressure gas, oil and hydraulic service, and steel valves for similar services.

Of special interest will be the new lines of plug-type "Ferrenewo" and "Renewo" valves, 150 to 300 pounds SP with "NS5" alloy seats and discs of great hardness to resist galling, abrasion, erosion and corrosion. Also of interest will be the corrosion-resistant valves—"Causul" metal gates, "SA" valves, all-iron "Ferrenewo," all-iron "King-clip" and the iron automatic liquid gauge with stainless-steel trim. Other products on display will include the "Alvor" constant-level oil control, a device for maintaining the proper oil level in ring-oiled bearings; nonmetallic disc valves, new air nozzles, steel needle valves, etc.

Lycoming Manufacturing Co.

Williamsport, Pa.

Spaces 1123, 1125 outside

In attendance

J. T. McFARLAND G. B. BARR
G. P. WISDOM W. G. DURANT
Z. H. WHITEMAN, JR.

The Lycoming Manufacturing Co. makes heavy-duty gas engines for oil well pumping and various industrial applications. It also manufactures single and dual engine-driven generator plants with continuous duty ratings of 10 to 60 KW.

Of especial interest to visitors to the oil show will be a Lycoming 50 KW generator plant in operation. Complete in one unit, it requires no special foundation, an ordinary 6-inch concrete floor being sufficient.

A sectional 6-cylinder engine also will be shown. This engine is completely sectioned so that every moving part is visible.

These gas engines have such features of design as zero lash self-adjusting valve lifters—cast-iron engine base—cast-iron radiator shell—tin plated pistons with steel baffles—silchrome exhaust valves with tungsten steel seat inserts—accurate governing (2 per cent) with no external linkage—water temperature and oil pressure safety switches—all of which contribute to dependable service and long life in oil-field service.

OSAGE
METAL CO.

INVITES YOU TO
VISIT THE DISPLAY
OF THE COMPLETE
LINE OF • • • •

OSAGE
HARD-SURFACING
METALS

HOUSTON, OCT. 11-16

BOOTHS 735-737-739

GENERAL STEEL PLATE CONSTRUCTION
GRAVER
TANKS
WATER CONDITIONING EQUIPMENT

A recent Graver Installation. Capacity, 134,000 barrels.

ENDURANCE

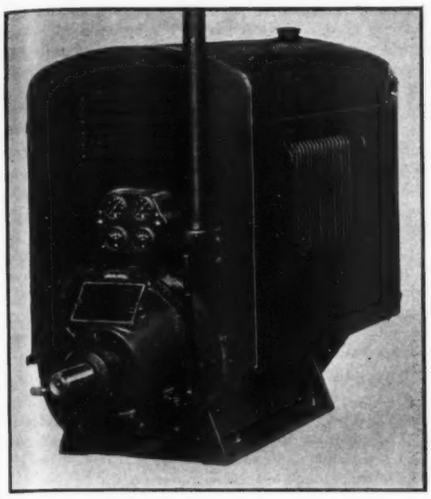
Into every Graver Tank and Steel Structure is built unsurpassed endurance—the result of three-quarters of a century experience in skilled designing, fabricating and erecting leak-proof vessels for every conceivable purpose.

Field Equipment
Refinery Installations
Service Stations and Accessories
Tanks, standard sizes or built to specifications
Metal Structures of all shapes
Piping, Fittings, etc.

Send for Literature Today.

GRAVER TANK & MFG. CO., INC.
75 Years of Dependable Service
New York, N.Y. East Chicago, Ind. Chicago, Ill. Catasauqua, Pa.

The AG series gas engines is comprised of a 4-, 6- and 8-cylinder engine and the majority of the parts are interchangeable. Engines are rated at 25-, 37½- and 50-horsepower @ 75-pound BMEP at 1,000 feet per minute



piston travel. Single-engine generator plants have ratings of 10, 20 and 30 KW and the dual-engine plants are rated at 25, 35, 40, 50, and 60 KW.

McCord Radiator & Manufacturing Co.

Detroit, Mich.

Space 1315 outside

In attendance

W. J. POWERS JOHN S. LYALL

The McCord Radiator & Manufacturing Co. will exhibit McCord SP lubricators for steam drilling and slushpumps, McCord SF lubricators and McCord class C chemical proportioning pumps.

A new development in the line of radiator engine cooling units will be shown for the first time. These units incorporate original features, developed out of McCord's 32 years' radiator building experience. They feature sturdy radiator units with high cooling capacity. The radiator design is of the continuous fin tubular type with oval tubes. This type of construction gives the greatest freedom from clogging and the same time exceptional high-capacity cooling. The finest quality virgin copper is used in the construction of radiator tubes and tanks. The shell or frame construction is of steel welded into one solid unit with no rivets or bolts. Three models are vailable for engines of 40, 60 and 120 horsepower.

McCullough Tool Co.

Los Angeles, Calif.

Space 1322 outside

In attendance

O. J. McCULLOUGH RAY ANDRADE

I. J. McCULLOUGH

The exhibit of the McCullough Tool Co. will be centered around the McCullough gun perforator, a mechanically fired tool used to perforate casing in the well. In addition the display will include double-acting rotary jars, internal casing-cutters, drillpipe-cutters, rotary releasing spears and rotary releasing sockets. Special drilling and firing tools will be shown.

J. H. McEvoy & Co.

Houston, Tex.

Booth 163

George J. McLernon

San Antonio, Tex.

Spaces 1112, 1114-A outside

MacClatchie Manufacturing Co.

Compton, Calif.

Spaces 1204, 1206, 1305, 1307

In attendance

C. F. WHALEY

The MacClatchie Manufacturing Co. will exhibit a complete line of its products, which include oil-well tools, aircraft equipment and marine equipment.

McNeely Materials Co.

Houston, Tex.

Booths 331, 333

M & H Valve & Fittings Co.

Anniston, Ala.

Booths 234, 236

Maintenance Engineering Corp.

Houston, Tex.

Booths 608, 610, 612, 709, 711, 713

In attendance

C. E. NAYLOR

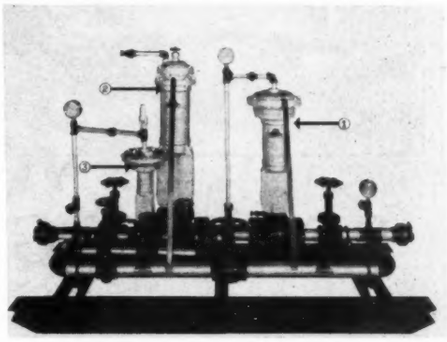
W. J. PEDDIE L. J. BURDA

M. N. AITKEN W. B. RASWON

O. L. DOCKUM A. J. HOOPER

C. N. SCHWARTZ R. E. COGSWELL

The Maintenance Engineering Corp. will feature the Meco unitized boiler firing control, illustrated here.



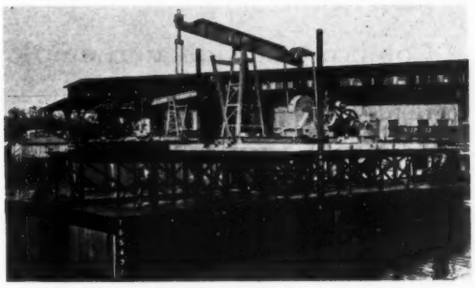
This unit, now widely used where gas fuel is available, maintains a constant steam pressure in the boilers, even with varying steam requirements and gas-supply pres-

SUBMERGIBLE BARGES

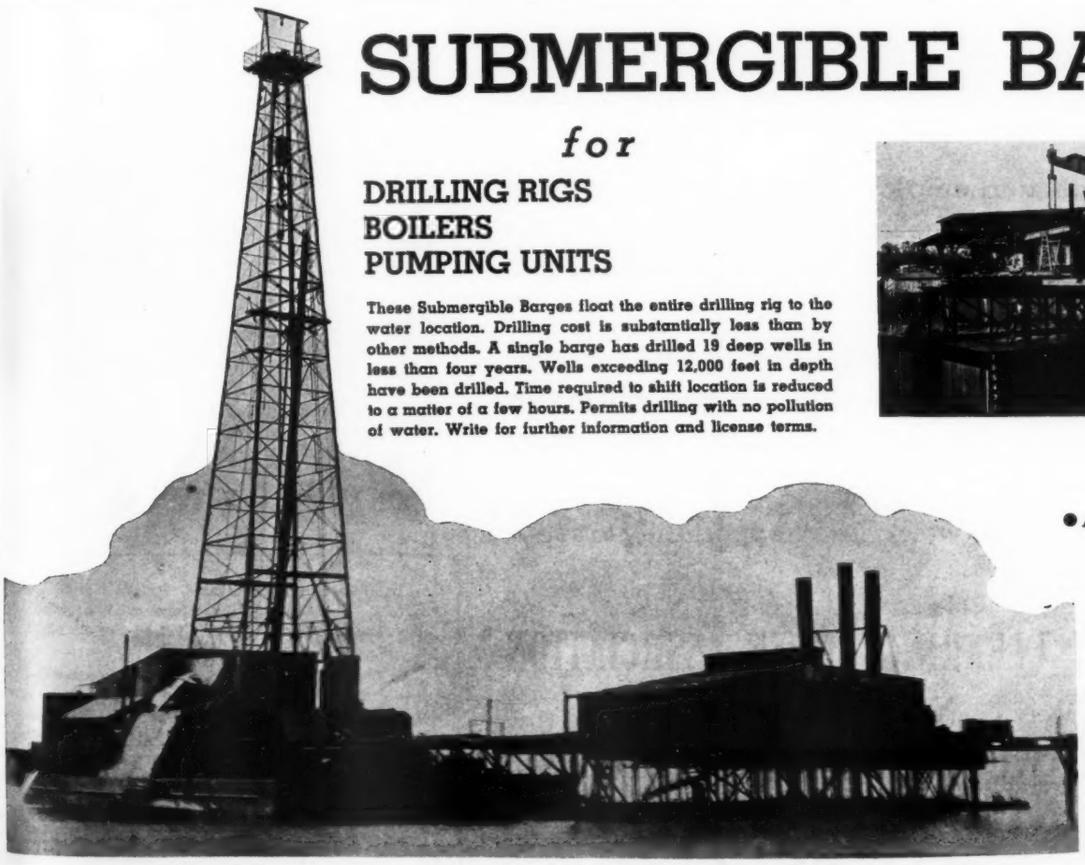
for

DRILLING RIGS
BOILERS
PUMPING UNITS

These Submergible Barges float the entire drilling rig to the water location. Drilling cost is substantially less than by other methods. A single barge has drilled 19 deep wells in less than four years. Wells exceeding 12,000 feet in depth have been drilled. Time required to shift location is reduced to a matter of a few hours. Permits drilling with no pollution of water. Write for further information and license terms.

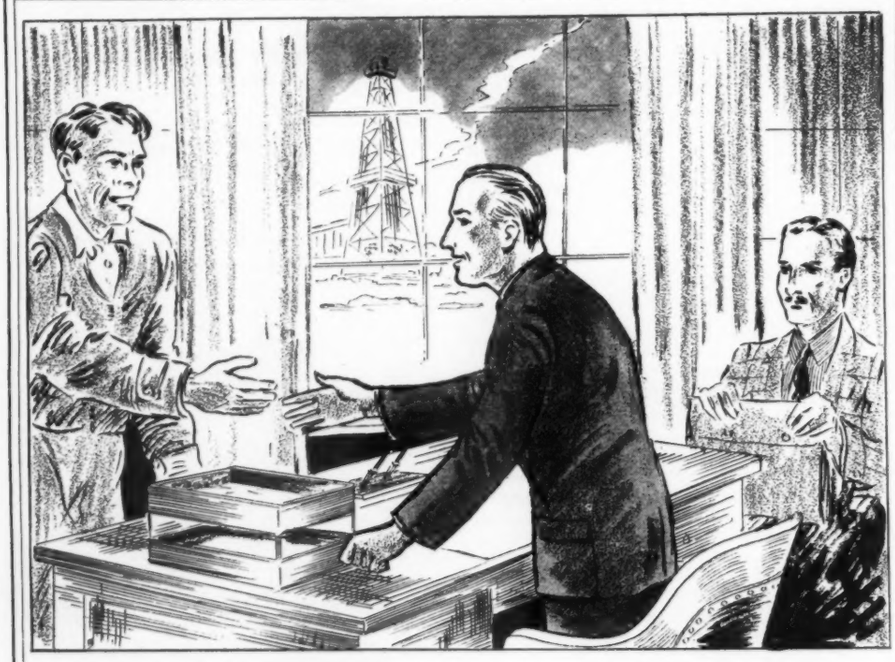


● *A pumping unit barge for use on a submerged location.*



● *Left—Drilling and Boiler Barges in Lake Barre, Louisiana field.*

PENNSYLVANIA SHIPYARDS, INC. BEAUMONT, TEXAS



SERVING OIL MEN

. . . *and their Special Need*

● Since the coming of oil to North and West Texas, and the later discovery of the East and South Texas fields, Fort Worth has become recognized as the Hub of the Oil Industry in the Southwest, and Fort Worth Banks have a thorough understanding of the banking services that Oil Men need.

Company officials and employees, and individual operators find a welcome at these banks. They find friends who speak their language . . . and what is more, bankers who like to talk it.

They find that these banks have resources and facilities adequate for all their needs, and bankers who will take a personal interest in the welfare of each and every customer.

These Fort Worth Banks welcome an opportunity to serve this great industry.

FORT WORTH CLEARING HOUSE ASSOCIATION

THE FIRST NATIONAL BANK
THE FORT WORTH NATIONAL BANK
CONTINENTAL NATIONAL BANK

Member Banks of Fort Worth Clearing House Association

sure. Gas is fed automatically to the burners in accordance with steam demand and correct draft is maintained by controlling the steam flow to jets installed in boiler stacks.

Available field system gas pressure is reduced by regulator (1) down to pressure most efficient for type burners used. This gas passes through the valve-body of the boiler steam-pressure regulator (2) normally held open by springs. Boiler steam is piped so as to exert its pressure on top of the diaphragm. The pressure tends to compress the springs and gradually close the regulator (2), reducing the supply of fuel gas to the burners. Any increase in steam consumption will tend to lower the boiler pressure, reversing the above operation and gradually opening the regulator (2). The gas pressure at the outlet side of regulator (2) (this is the burner pressure) is piped to exert a pressure on the diaphragm of stack blower control regulator (3), which is held shut by springs. As the boiler load increases, this gas pressure (burner pressure) also increases, opening the regulator (3) to feed steam to steam jets in stacks and increase draft. As the boiler load decreases, the regulator (3) gradually closes off.

This unit, built by Meco, represents the unitization of Mason-Neilan regulators, which have been used for years, but only recently adapted to this unit service.

The complete Meco line will be displayed, including such well-known manufacturers as National Tube Co., Tube-Turns, Inc., Hall Laboratories, Inc., and the line of Commercial orifice fittings, Scovill Admiralty tubing, forged- and cast-steel valves and fittings, and Meco forged-steel flanges.

Macwhyte Co.

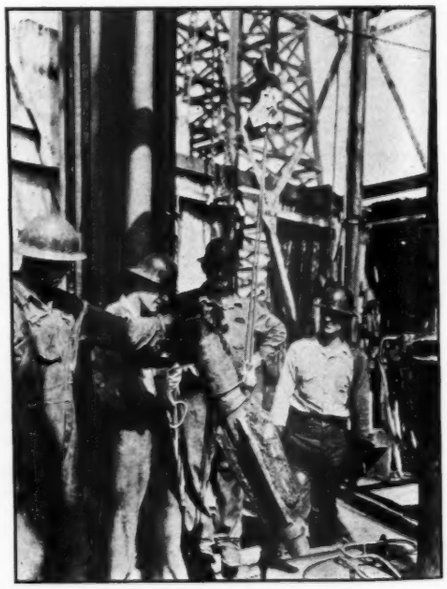
Kenosha, Wis.

Space 1215 outside

In attendance

H. E. SAWYER JAMES A. LONG
GOODWIN JOHNSTON FRED E. BENNETT
H. M. ROBINSON

Macwhyte Co. will demonstrate the use of the new Macwhyte Siler sling developed for use in the oil fields



for handling equipment around derricks, including core-barrels, reamers, tools, bits, pipe, etc. A crane will show the use of this sling handling various kinds of oil tools.

In addition the company will have a complete display of its specially designed wire rope for rotary drilling, cable-tool drilling, and the other wire rope used in connection therewith, such as sand-lines, bailing-lines, winch-lines, tow-lines, cleaning-out lines, etc. The exhibit will be a complete display of wire ropes used in the oil fields, amplified by pictures.

Maloney Electric Co.

St. Louis, Mo.

Brance-Krachy Co. exhibit

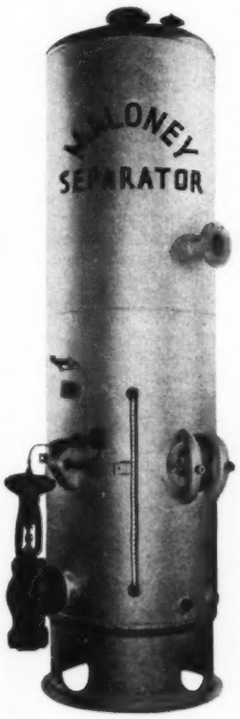
Spaces 1122, 1124, 1223, 1225 outside

D. S. Mair Machinery Co.
Houston, Tex.
Booth 557

Maloney Tank Manufacturing Co.
Tulsa, Okla.
Space 1012-B outside
In attendance

J. S. WARREN	J. C. HIGHFILL
C. W. STEVENS	E. G. MURPHY
H. H. SWAN	ROY TARRANT
JACK CALLOWAY	JOE PORTILLO
N. B. GARNER	CARL FOLKNER

The Maloney Tank Manufacturing Co. has just announced the addition to its line of an improved oil and gas separator, and the new separator, together with a working model demonstrating its new features, will be on public display for the first time at this company's exhibit.



The Maloney separator has been in use in various fields in the Mid-Continent, and reports from all areas are said to state that it is giving efficient service. This separator offers a number of new features, the principal one of which is its mist traps, which separate all of the oil from the gas vapors and allow the dry gas only to escape through the vent in the top of the separator. Another feature is the increased capacity of the initial chamber, where the oil and gas enter the separator. This chamber provides a higher vertical travel for vapors or gases as they enter the new knockout element. All elements of mist extraction are covered by patents.

All valve equipment in the separator is manufactured by firms of many years experience and established reputation. The new separator is manufactured in standard sizes and working pressures and constructed to comply with the A.P.I. and A.S.M.E. standards. Nozzle connections are reinforced as required.

The exhibit will include also a regular Maloney storage tank, with standard coating consisting of an overall priming coat of the company's special red chromated iron oxide primer and outside finish coat of heavy aluminum paint. A complete Maloney hot-dip-galvanized bolted steel tank will also be shown.

A feature of the exhibit will be a Maloney self-supporting, cantilever-type sectional-steel stairway and walkway designed in accordance with the new recommendations of the A.P.I.

Marmon-Herrington Co., Inc.
Indianapolis, Ind.
Transportation Equipment exhibit
Space 1013 outside
In attendance
COL. A. W. HERRINGTON H. L. FISHER
CHARLES AMBROSE

The Marmon-Herrington Co., Inc., whose specially engineered and manufactured all-wheel-drive motor vehicles are widely used in the oil industry, will show for the first time its new model TA-30 tractor. Especially adaptable to operating conditions in the southwestern states, the new tractor is capable of sustained road speeds of 25 miles an hour and better and has unusual maneuverability. The speed capacity, proved in test runs of 1,000 miles each, is certified by the American Automobile Association.

Simplicity of design and ease of operation, along with a new track design, are outstanding features of the new unit. The special track combines the strength of steel and the cushioning effect of rubber to allow smooth, quiet operation, free of clatter and vibration.

Extensive use of automobile parts in the new tractor assures easy servicing of parts, and all parts, including the engine, are quickly accessible. The tractor hull is watertight and the unit will operate in more than 36 inches of water. The center of gravity of the new model is so low the tractor can be turned safely on any hill it will climb. It can be pivot-turned safely, either from a standing position or from its highest forward speed.

Besides the tractor, Marmon-Herrington's all-wheel-drive production will be represented by a Marmon-Herrington model C40-6 (a six-wheel drive); a model 65-6 all-wheel-drive Ford V-8 with six wheels driving, with a 154-inch wheelbase, and a Marmon-Herrington all-wheel-drive Ford V-8 St. Paul Road Patrol. The company's complete cutaway mechanical display also will be shown in the booth.

Marshalltown Manufacturing Co.
Marshalltown, Iowa
Booths 533, 535

Mason-Neilan Regulator Co.
Boston, Mass.
Maintenance Engineering Corp. exhibit
Booths 608, 610, 612, 709, 711, 713

Master Separator & Valve Co.
Los Angeles, Calif.
Space 1210 outside

Mechanical Rubber Co.
Passaic, N. J.
Booth 430
Continental Supply Co. exhibit

Martin-Decker Corp.
Long Beach, Calif.
Booths 130, 231
In attendance
L. A. (Pete) CRAWFORD E. L. DECKER
The Martin-Decker Corp. exhibit will feature the

Save yourself a HOLE Lot of trouble with

A NEW CORE ORIENTATION SERVICE

SPERRY-SUN'S Polar Core Orientation (U. S. Patent 1,792,639, 1,778,981, 2,089,216 and others pending) does not interfere with the progress of drilling. The orientation is determined in our laboratory, to which the selected cores taken by any type of core barrel in the ordinary course of drilling and properly marked, are shipped from any distances. No special equipment is required at the well, there is no loss of drilling time.

SURWEL SERVICE

Given at reasonable rates by our specially trained staff equipped with special trucks. TWO SURVEYS ARE MADE FOR THE PRICE OF ONE PROVIDING A DOUBLE CHECK. SERVICE IS AUTOMATIC AND VERY SPEEDY. Open holes are surveyed by attaching the SURWEL Clinograph to the drill stem and making a round trip with it as fast as the drill crew can make it, with no waiting for orienting the pipe.

Cased holes are surveyed by making a round trip on the wire line at an average speed of 180' per minute.

TIME required FOR making TWO SURVEYS, one in one out, OF a 6000' HOLE on the WIRE LINE about TWO HOURS, on the DRILL PIPE about FOUR HOURS.

SURWEL surveys are of great value when:

- Solving production problems
- Deepening old holes
- Experiencing difficulties with pumping equipment
- Water infiltrations
- Drilling wells near border lines

and if made when these problems arise will help in solving them at a great saving in cost.

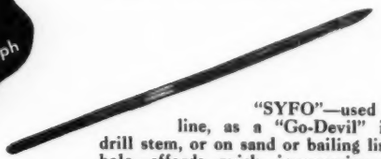
Self Checking H-K Clinograph

"H-K" designed for open holes only—provides permanent, accurate, photographic records of inclination and direction on paper discs five minutes after removing instruments from hole. (U. S. Patents 1,812,994; 2,027,642; 2,093,128 and others pending.)

Self Checking SURWEL GYROSCOPIC CLINOGRAPH

"SURWEL" provides a map of the well at all depths, prepared from actual photographic records, made while going in and coming out. (U. S. Patents 1,124,068; 1,812,994; 1,898,473; 1,959,141; 1,960,038; 2,006,556; 2,012,138; 2,012,152; 2,012,455; 2,012,456 and others pending.)

Self Checking SYFO Clinograph

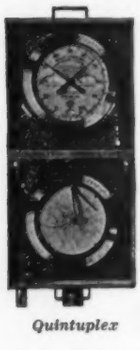


"SYFO"—used on a wire line, as a "Go-Devil" inside the drill stem, or on sand or bailing line in open hole—affords quick, inexpensive daily records of vertical deviation in drilling, without the use of dangerous acids. (U. S. Patents 1,962,634; 2,013,875 and others pending.)

SPERRY-SUN WELL SURVEYING CO.
1608 Walnut Street, Philadelphia, Pa.

Tulsa, Oklahoma, 425 Petroleum Bldg. Houston, Texas, 3118 Blodgett Avenue. Long Beach, Calif., 549 E. Bixby Rd. (3800 Block Atlantic Ave.)
Lafayette, La., Bank of Lafayette Bldg. Bakersfield, Calif., %Elks Club, 17th and I Streets

various instruments which the company manufactures. These include the Quintuplex drilling control instrument, the individual type mud-gauge, slushpump gauge, pump dynamometer, pullrod dynamometer, cable-tension indicator, and several new products including the measuring-line weight-indicator, the "Clipper" type weight-indicator, and the unitized mud-gauge. This last product is to be given its initial showing.



Quintuplex

The Quintuplex drilling control instrument, familiar to most operators, combines the five important drilling gauges in one case right in front of the driller's eyes, and keeps a written 24-hour record of drilling progress. An outstanding Martin-Decker development has been incorporated in the mud element of the Quintuplex, enabling it to give Vernier readings of the low pressures and have ample capacity to cover high pressures. Up to 1,500 pounds the dial travels through 240 degrees of the total dial circumference, while from 1,500 pounds to 3,000 pounds the dial is retarded to compress this range on only 60 degrees. The result is high fidelity to the small pressure changes of ordinary drilling, with ample capacity to cover the high peaks of breaking circulation, cementing, etc. This Vernier arrangement has also been incorporated in the individual type mud pressure gauges.

The new measuring-line weight-indicator handles any line up to three-sixteenths inch diameter and by means of ingenious roller contactors gives accurate readings whether the line is moving or at rest.

The new "Clipper" weight-indicator weighs only 47 pounds complete, has 10 interchangeable dials which enable it to read directly in pounds or points for any string-up, with any conventional sized line and has both sensitive and supersensitive indicating hands.

The Unitized mud-gauge was developed to meet the need for a portable mud pressure gauge capable of maintaining test gauge accuracy through long years of service. Incorporated within the case are the gauge itself; a diaphragm unit that prevents the drilling fluid from contacting the gauge mechanism; and an adjustable pulsation damper that smooths out destructive fluid surges, yet allows instant sensitivity to actual pressure changes.

PLAYING A HELPFUL PART IN THE OIL INDUSTRY'S GROWTH

★

TO THE brains and brawn of those who have built the Southwest's great oil industry have been added the helpful services of such institutions as ours . . . institutions with an intelligent understanding of oil and supply men's problems. To continue playing our helpful role in your industry's future is one of our most important and most pleasant jobs.

NATIONAL BANK OF COMMERCE

CAPITAL AND SURPLUS $5,125,000

Gulf Building Houston, Texas

"THE BANK OF COURTESY"

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

Geo. S. Mepham Corp.

East St. Louis, Ill.

Booths 415, 417

(See Colox Sales & Service)

In attendance

L. K. AYERS — J. A. COULSON
E. F. BROWNHILL — JACK WINTERS
R. C. BIERING — B. B. BRALY
J. H. BEESLEY — G. J. GEISELMAN, JR.
ROLAND F. HODDER — W. P. LESTER
J. T. HANCOCK, JR. — J. E. CAMPBELL
W. H. STEEN — J. T. PATTERSON, JR.
JOHN KNOX SMITH

Colox, Suspendo clay, Meptol, Jelox and Chemical Z will be shown by the George S. Mepham Corp.

Merco Centrifugal Co.

San Francisco, Calif.

Space 1002 outside
W-K-M Co. exhibit

In attendance

ALBERT PELTZER, JR.

The Merco Centrifugal Co. will exhibit a Merco type A20 centrifugal rotary drilling-mud desander in operation on typical rotary drilling-mud, demonstrating the separation of sand and cuttings from the mud. An interesting departure in this display operation is that the sand will be extracted from the mud at much higher density than heretofore accomplished in any of our centrifugal separators. In addition to this, the machine on display operates at only 75 per cent of the speed that has been the rule in the past with the type A20.

Merco Nordstrom Valve Co.

Pittsburgh, Pa.

Booths 335, 337

The Meriam Co.

Cleveland, Ohio

W. H. Curtin & Co. exhibit
Booths 344, 346

Mid-Continent Supply Co.

Fort Worth, Tex.

Space 1001 outside and booth 202

Cummins full-diesel cold-starting diesel engines, with their exclusive patented fuel system will be featured in the Mid-Continent Supply Co.'s exhibit which will include other drilling equipment, pumping and pipe line material, as follows:

Two model LI-600 Cummins cold-starting full-diesel 6-cylinder engines, 200 horsepower each at 800 r.p.m., 250 horsepower each at 1,000 r.p.m. powering a Wilson Atlas rotary drilling rig. Two model LI-600 Cummins diesels of the same type powering an Allis Chalmers M-2-800 rotary drilling rig.

New model L V-type 12-cylinder Cummins cold-starting full-diesel engine, 400 horsepower at 800 r.p.m., 500 horsepower at 1,000 r.p.m.

Model HP-600 Cummins 6-cylinder full-diesel cold-starting power unit, 100 horsepower at 1,500 r.p.m., 150 horsepower at 1,800 r.p.m.

Model AMR-6 Cummins 6-cylinder full-diesel cold-starting marine engine, 85 horsepower at 1,500 r.p.m., 100 horsepower at 1,800 r.p.m.

Model HP-600 Cummins full diesel cold-starting engine powering Wilson Giant model winch. Unit used for servicing wells.

Mid-Continent utility unit on pipe skids serving as air-tanks, including air-compressor, generator and centrifugal water pump—powered by the new model A. 4-cylinder Cummins cold-starting full-diesel engine, 30 horsepower at 1,200 r.p.m.

Emsco engineered rotary brake-lining, different in principle and proven in operation, which controls abrasive action, prevents scoring without excessive drum wear and is said to deliver smooth, safe braking.

Naylor spiral lock-seam surface casing and line pipe with the exclusive lock-seam structure providing maximum strength with minimum weight and many other features.

Mid-Continent automatic relief valves, without seats or springs, for installation on main pipe lines or on pumps and eliminating excessive pressures caused by surges or improper operation of gate valves.

Ludlow gate valves, electroloy open-flow check-valves and electroloy machinery replacements manufactured by the Locomotive Finished Material Co., Atchison, Kans., Bethlehem A.P.I. normalized sucker-rods, manufactured by the Bethlehem Steel Co., Pacific oil well liner pumps and accessories, featuring precision equipment and "Moloy" pump liners designed especially to withstand severe pumping conditions such as sand, high pressures, abrasion, corrosion, temperature and shock.

Multi-Seal rivets, for repairing and construction of all kinds of equipment with 2,500 applications for maintenance engineers, shop foremen, construction engineers, contractors and mechanics in all fields. This exhibit and demonstration will show how the Multi-Seal rivet upsets its own sealing rivet-head on the opposite side of the work; forms three distinct sealing surfaces of all metal; expands and compresses filling in any irregular hole at the same time, following the outside and inside surface irregularities or angles, such as corners or overlapping seams; seals cracks from inside and outside with metal flow between; will withstand over 3,000 pounds internal pressure.

Midwest Piping & Supply Co.

St. Louis, Mo.

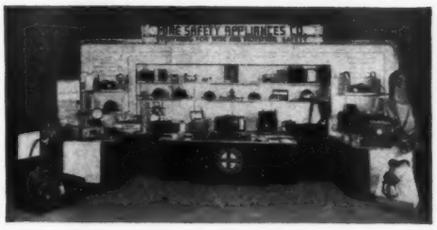
Frick-Reid Supply Corp. exhibit
Booths 350, 352, 354, 356, 451, 453, 455, 457

Mine Safety Appliances Co.

Pittsburgh, Pa.

Booths 313, 315

The Mine Safety Appliances Co. will exhibit approved safety equipment for the oil industry, featuring new developments since last year's show. In this group are the M.S.A. portable water fountain, which supplies cool water under pressure to a sanitary blubber for crews in the field; the new M.S.A. salt-tablet dispenser, built of molded bakelite, weather-proof



and positive in its one-hand operation; the M.S.A. Explosimeter, a pocket-size instrument for determining explosive gases and vapors; the M.S.A. combustible-gas indicator, a portable instrument for testing explosive gas hazards, locating gas leaks, etc.; and the new M.S.A. abrasive mask, a lightweight, durable, highly efficient unit which gives protection to the wearer from heavy concentrations of fine dust in shot- and sand-blasting. The new M.S.A. all-weather first-aid kits will also be on display, sealed against dirt and moisture with molded rubber gaskets.

In addition to these latest M.S.A. products will be shown the M.S.A. combination hose mask; the all-service mask; M.S.A. skullgards; Comfo respirators; the M.S.A. hydrogen-sulphide detector; H-H inhalator; safety clothing, shoes and goggles and first-aid materials of every kind.

Mueller Co.

Decatur, Ill.

Spaces 1232, 1234 outside

In attendance

MR. AND MRS. ROBERT H. MUELLER
MR. AND MRS. FRANK H. MUELLER
MR. AND MRS. J. W. WELLS
GEORGE HOFFMAN — WARD DeWITT
O. J. HAWKINS

Gas and oil equipment which will be exhibited by the Mueller Co. will include drilling and tapping machines, siphon drip connections, high-pressure stops, gas regulators, valve-type steel welding fittings, and plugging and stopping equipment for by-passing and all extension maintenance construction work on pipe lines without interruption of the service or the supply.

The drilling machines exhibited will drill one-quarter inch to 12-inch holes in high-pressures lines of all sizes under pressure. The tapping machines will tap lines under pressure and insert stops or plugs three-quarter inch to 2 inches in size.

Mission Manufacturing Co.

Houston, Tex.

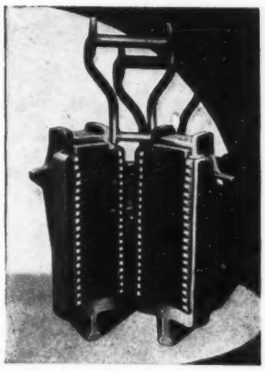
Booths 304, 306, 405, 407

In attendance

W. B. SHARP	DUDLEY C. SHARP
W. T. CAMPBELL	JOHNNY BEST
J. H. TUCKER	J. A. BUTLER
F. S. PRICE	COBB TURNER
A. O. NELSON	C. M. BAKER
R. W. CHAPMAN	O. K. RYAN
R. W. BARNHILL	D. J. OLLRE
RALPH CLEMONS	GENE TEER
R. B. PARRISH	R. M. GARRISON
H. B. YOUNG, JR.	W. E. LILJESTRAND
G. P. TODD	BIRKS JAHN
L. K. JAMES	E. W. GENTRY

The Mission Manufacturing Co. will feature four products:

New Mission rotary slips, model 36.—Mission slips are distinguished by a unique principle of "Rolling Dogs" that roll away from the pipe as it is pulled. This

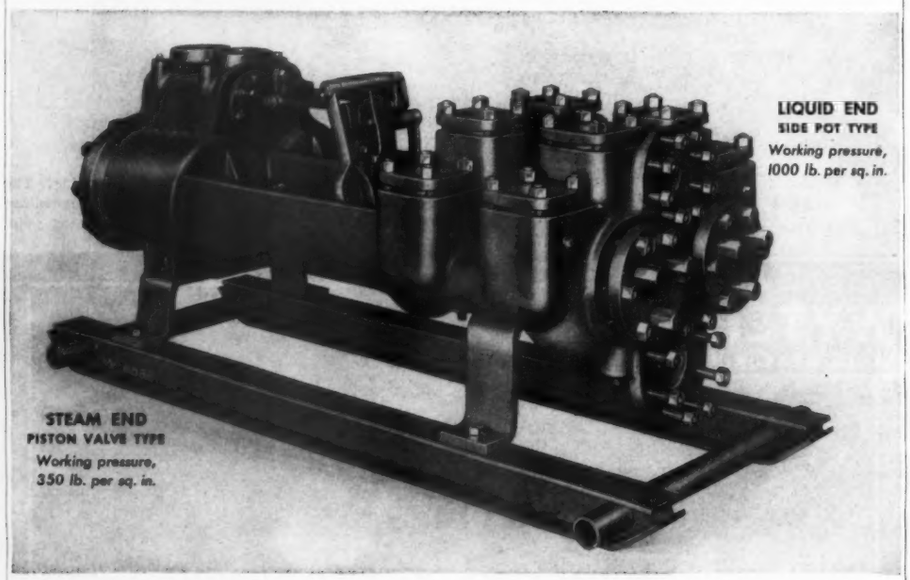


assures instant release making for fast pulling. The broad friction face of the dogs, together with the rolling dog principle which gives a gradual, cushioning grip,

K&E
WYTEFACE
STEEL MEASURING TAPES
Steel tapes you can see!
Black-on-white graduations . . . a clear white background that contrasts with crude oil . . . a new resilience that checks kinks . . . and a crack-proof surface that protects the steel from rust — these are the reasons for the wide popularity of this improved steel tape. In all sizes and types. Ask your dealer, or write for a catalog.
KEUFFEL & ESSER CO.
HOBOKEN, N. J.
NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO DETROIT MONTREAL

WORTHINGTON

HIGH-PRESSURE DUPLEX STEAM PUMP



Type PG • • • 10 x 4½ x 10

for

BOILER FEED and GATHERING SERVICE

ADVANCED DESIGN
STURDY CONSTRUCTION
HIGH-GRADE MATERIALS

Assuring

UNINTERRUPTED PERFORMANCE
MINIMUM ATTENTION
and LONG OPERATING LIFE

• Send for descriptive literature

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GREAT LAKES COAL & COKE CO.

30 Rockefeller Plaza, New York, N. Y.

GENERAL OFFICES

Standard Oil Co. (Ind.) Bldg., Chicago, Illinois

HAVE YOU

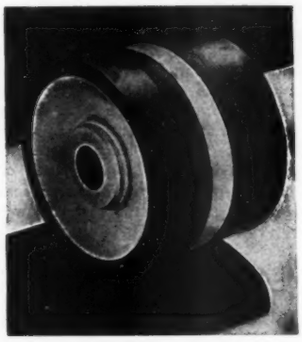
RENEWED YOUR

JOURNAL

SUBSCRIPTION?

eliminates danger of slips cutting or crushing pipe. The dogs are replaced quickly and easily on the derrick floor, saving costly delays in taking slips to shop. The body of the slip is practically indestructible.

Improved Mission slushpump-pistons.—Among features of the Mission pistons are the following: 1. Replaceable rubbers on a long-lasting body, saving money formerly invested in continually buying complete new pistons. 2. Principle of more rubber and less metal to give greatly increased wiping surface, eliminating by-

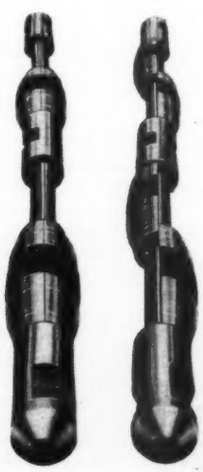


passing and increasing the life of liners and pistons. 3. Extreme light weight, eliminates drag. 4. Drop-forged, chrome-nickel body, of one-piece construction, resists any pressure.

New Mission Silver Top valves.—Use a time-proven Mission principle of a long-lasting seat with replaceable bushings which take the terrific blows that destroy the seats in conventional-type valves. Save labor

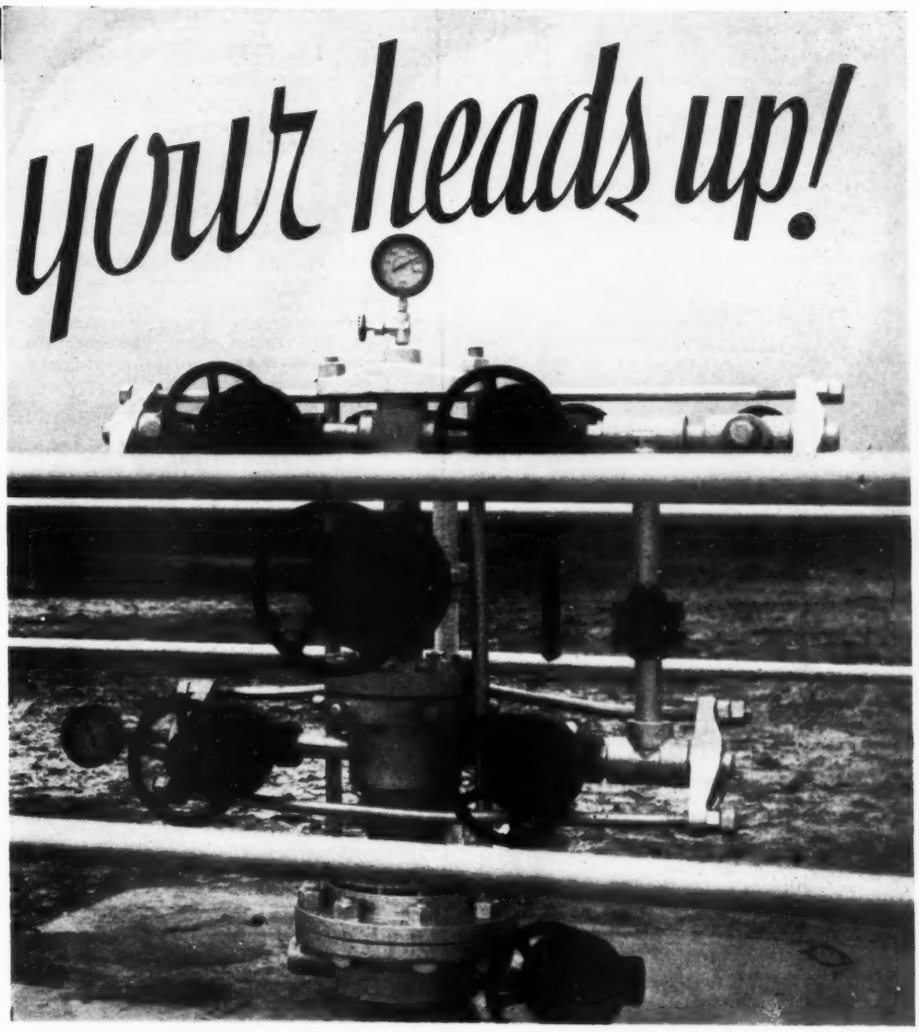
of changing seats often and save money formerly invested in buying new seats where the wear is taken by the seat itself.

New Mission valveless swabs, tandem model.—Operate on a new split-rubber principle. On the downstroke half of each rubber rises above the stationary half, allowing an area for fluid passage larger than the area of flow around the A-P-I pin. Makes for unusual fall-



ing speed. On the upstroke, the movable half of each rubber drops back beside its other half. A safety feature lies in the fact that gas pressure will open the split rubber, permitting gas to by-pass, resuming its load

Keep your heads up!

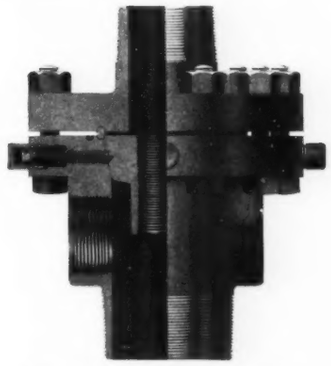


This compact hook-up eliminates necessity of cellar, as even the casing head is above ground.

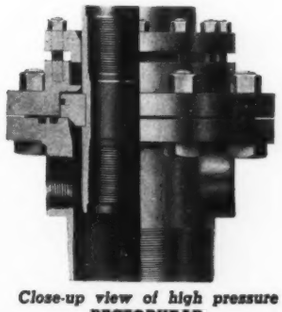
This producing company is following an operating policy which we present as the safe, practical and economical method of drilling, completing and producing wells in any pressure area. The entire hook-up is kept above ground. A concrete foundation, poured right around surface pipe, insures safety and cleanliness permanently.

And this hook-up, built around a 6,000-pound test RECTOR-HEAD and a 6,000-pound test RECTOR TUBING HEAD, is as permanent as the production! Both of these heads are Full Opening, and all drilling operations can be carried on through them . . . from making hole to hanging tubing. Both are Repackable Under Pressure.

HOUSTON
OCTOBER
11-16-1937
SEE OUR EXHIBIT
OIL WORLD
EXPOSITION



Close-up view of high pressure RECTOR TUBING HEAD.



Close-up view of high pressure RECTORHEAD.

RECTOR

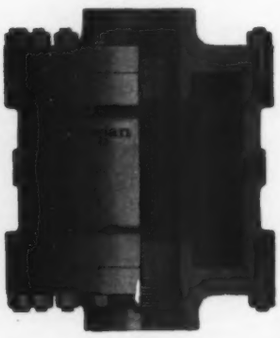
REGAN

(Type K)

BLOWOUT PREVENTERS

This equipment sets a new standard in well control. Normally open to the full size of the casing, it allows free passage for drilling bits, fishing tools and other devices. Can be closed instantly by remote control to pack off around any size or shape of pipe, kelly or tool. An unrivaled stripper for oil completion jobs.

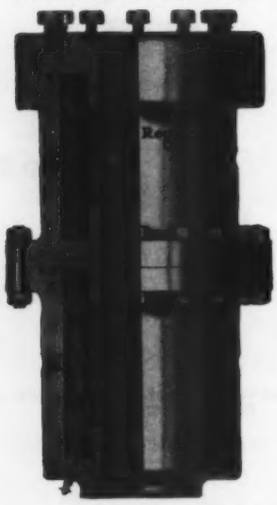
REGAN TYPE K BLOWOUT PREVENTER



TYPE K RUBBER

The patented construction of this rubber permits the widest range of variation in size and shape of object to be packed off, at the same time allowing a wall thickness which insures strength to resist casing pressures up to its rated capacity.

REGAN DOUBLE TYPE K BLOWOUT PREVENTER



SEND FOR BULLETIN

Regan

Forge & Engineering Co.

Plant and General Offices: San Pedro, Cal. P. O. Box 150

Mid-Continent Office: 1502 Maury St., Houston, Texas

Oklahoma Representative: Bovaird Supply Co., Tulsa, Oklahoma

Kansas Representative: Bovaird Supply Co., Wichita, Kansas

New York Office: 17 Battery, G. R. Woods, Mgr.

without loss after the gas has passed. There is no loose line over the derrick floor to endanger the crew.

Lee C. Moore & Co., Inc.

Pittsburgh, Pa.

Booth 1308

In attendance

G. I. LYNCH — W. H. PAYNE

CHARLES KRAUS

National Bank of Commerce

Houston, Tex.

The National Bank of Commerce, Houston, will make its booth a "service station," offering to exhibitors and visiting oil men helpful courtesies such as messenger service, facilities for writing letters and sending telegrams, a place to relax, a bureau of information, and other accommodations designed to save time and energy.

National Radiator Corp.

Johnstown, Pa.

Booths 359, 361

In attendance

B. T. DU PONT — EDWARD SOPH

E. W. JACOBI — D. H. ANNIN

National Oil-Rators and National condensing and cooling sections will be featured by the National Radiator Corp.

The National Supply Co.

Toledo, Ohio

Booths 121, 123, 125, 127, 129, 131, 133 and 135

In attendance

D. S. FAULKNER — C. C. CARTWRIGHT

H. O. POWELL — L. V. BOGGS

A. W. McKINNEY — C. A. McCOLLUM

J. R. MAHAN — J. F. TUCKER

D. G. MANN — M. T. ARCHER

The National Supply Co. will not show any equipment, but its space will include a booth 10 feet deep and 80 feet wide, the background of which will be enlarged photographs 5 feet high and 7 feet long, illustrating National and Ideal equipment in the oil fields. The rest of the booth will be devoted to reception purposes.

National Tank Co.

Tulsa, Okla.

Booths 139, 141

In attendance

JAY P. WALKER — C. W. IMMEL

FLOYDE L. SENTER — R. E. NEEDHAM

S. S. PARKER — J. E. WARD

L. S. ALLEN — HOWARD AMMERMAN

The National Tank Co. will feature a general survey of its products. The National A.P.I. bolted tank is said to have these five advantages: (1) A 24 by 44-inch extended manway with all cover-bolts removable and replaceable from the outside. (2) An 8 by 22-inch gauge hatch which eliminates spilled oil on the decks. (3) An envelope gasket which prevents bottom seam leaks which are destructive to tank bottoms. (4) An anti-channel drain-cover which eliminates cutting a drain into the bottom of the tank, preventing bottom corrosion. (5) National's equalizing valve which retards deck corrosion, a vital point in the life of the tank.

Other exhibits will be a working model of the National oil and gas separator, embodying the company's patented diverter and gas scrubbing chamber; National "Titeline" couplings which are two-bolt pipe line couplings; pictures showing the operation of National automatic emulsion treaters, and the Armco-National spiral welded surface casing.

National Tube Co.

Pittsburgh, Pa.

Booths 633, 635, 637, 639, 641

In attendance

H. J. MORLANG — W. F. McCONNOR

J. B. GRAHAM — W. C. MOSER

A. C. TEMMEL — J. R. BOAX

P. F. HOUSERMAN — H. M. COOLEY

JOHN HELMSTADTER — E. E. SMITH

The National Tube Co. will exhibit oil-country tubular goods, including National A.P.I. casing, tubing and drillpipe; National A.P.I. seamless interior-upset drillpipe, fitted with various types of tool joints; National external-upset tubing with high-tensile couplings; National special-alloy casing, with long threads and couplings; National external-upset casing, with long threads and couplings; National semiflush-joint casing. A special display will illustrate the National Tube Co.'s facilities for research and testing, with actual specimens of tested oil-country goods.

National Transit Pump & Machine Co.

Oil City, Pa.

Frick-Reid Supply Corp. exhibit

Booths 350, 352, 354, 356, 451, 453, 455, 457

New Bedford Cordage Co.

New York, N. Y.

Booth 430

Continental Supply Co. exhibit

Norvell-Wilder Supply Co.

Beaumont, Tex.

Booths 104, 206, 108, 110, 112, 114, 116, 118, 120, 205, 207, 209, 211, 213, 215, 217, 219, 221

Representing

Jefferson Union Co.; The Kennedy Valve Manufacturing Co.; A. Leschen & Sons Rope Co.; Coffing Hoist Co.; Western Block Co.; Dean Brothers Co.; Hewitt Rubber Corp.; Baash-Ross Tool Co.; Production Equipment Co.

Oakite Products, Inc.

New York

Booths 565, 566

In attendance

J. A. CARTER — J. C. LEONARD

WILLIAM A. DOWEN — E. RIGHTOR

J. R. WHYTE

An interesting exhibit, showing methods for handling the various cleaning operations presented by the producing, refining, transportation and distributing divisions of the oil industry, has been prepared by Oakite Products, Inc., makers of industrial cleaning materials.

One of the featured operations will be stripping of paint from oil storage tanks, tankcars and similar equipment. Removal of paint from equipment, prior to refinishing, has been placed on a faster, more thorough and more economical basis through the recent development of Hot Oakite Flow-On Method. It makes possible the stripping of large areas at one time with little manual effort, and without fire hazards.

The Oakite display will visualize the importance of removing insulating deposits from heat-exchange equipment, and show methods which have been found successful for doing this work, without the need for disassembling the apparatus.

The Oil Country Specialties Manufacturing Co.

Space 1011 outside

In attendance

W. P. TURNER — D. R. BROWN

D. C. MYERS — C. B. MORTON

A. G. EVANS-LOMBE — F. D. STANLEY

C. A. ANDERSON — JOHN SCHUETZ

H. B. DICK — D. O. LARKIN

LeROY WILLIAMS — D. M. CADE

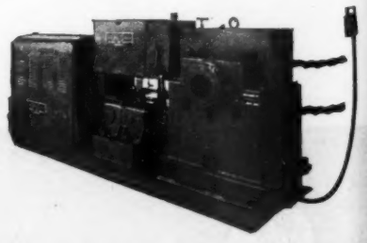
TOM SCOTT — MELVIN L. DICK

R. D. EKSTRAND — D. E. HAZLEWOOD

JOE KILCHENSTEIN — J. H. KOUNTZ

HAROLD McSPADDEN — B. H. PALAMOUNTAIN

GLEN WILSON — A. L. MANN



The O C S automatic weight control, to be displayed by The Oil Country Specialties Manufacturing Co., Coffeyville, Kans., is an independent unit consisting of a V-8 power unit driving a self-locking worm gear through

(Continued on Page 246)

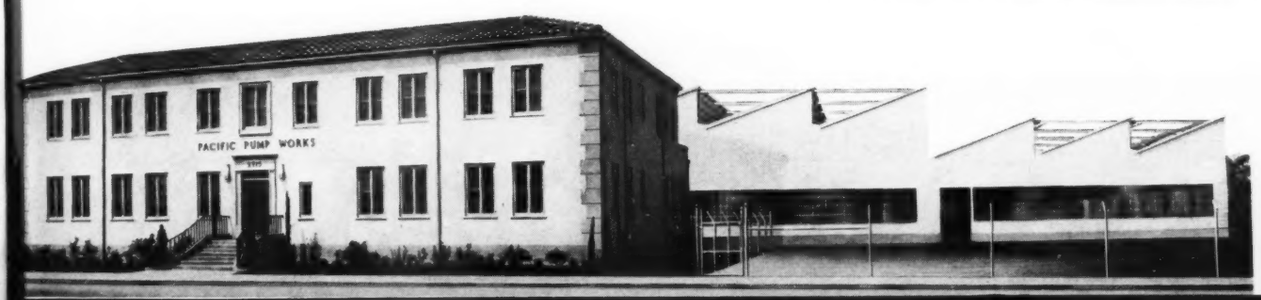
STREAMLINED on the inside

The House that QUALITY Built . . . . . for the manufacture of PACIFIC OIL WELL PUMPS

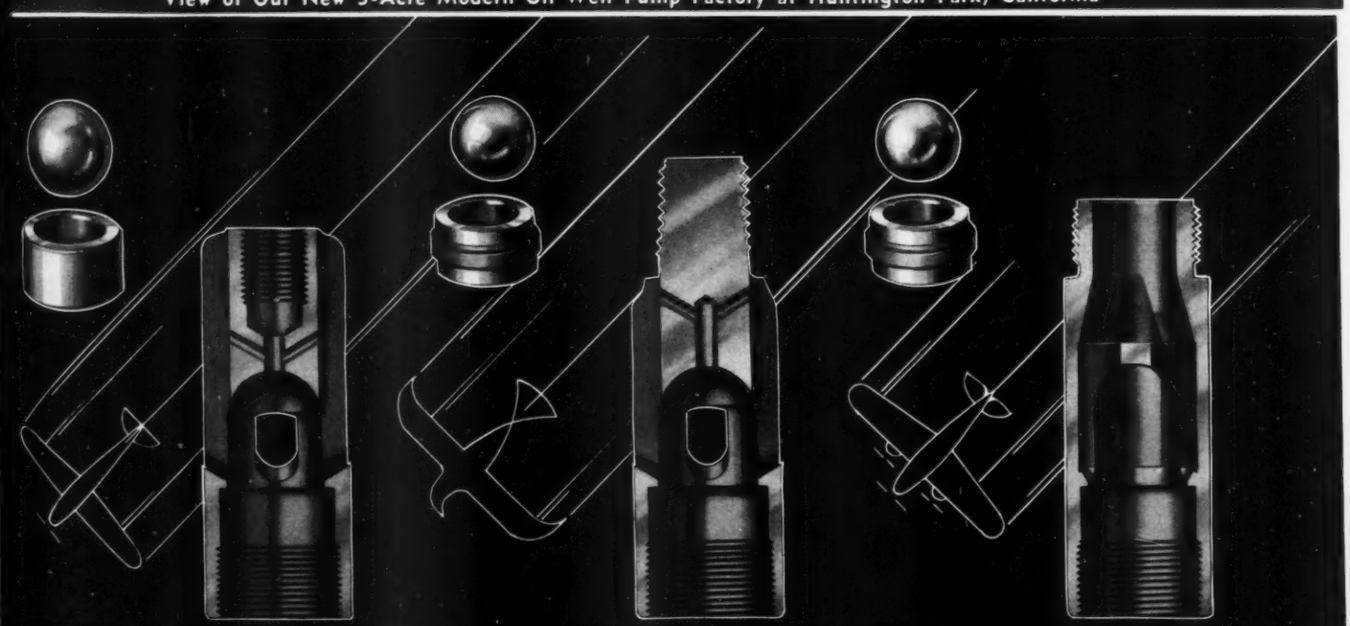
The universal acceptance of Moloy Metal and Pacific Pumps by the Oil Industry has made this ultra-modern plant both possible and necessary to take care of the ever growing demand for our products.

Especially designed, built and equipped for the exclusive manufacture of Pacific Oil Well Pumps, this new factory adjoining the Pacific Pump Works Hot Oil Pump plant, is now on production. It is the most modern pump plant in America, equipped throughout with high speed, automatic machinery, manned by skilled mechanics for the production of Pacific and Oil States Insert Liner Pumps, made famous by Moloy Metal, precision and accuracy.

PACIFIC PUMP WORKS
HUNTINGTON PARK, CALIFORNIA



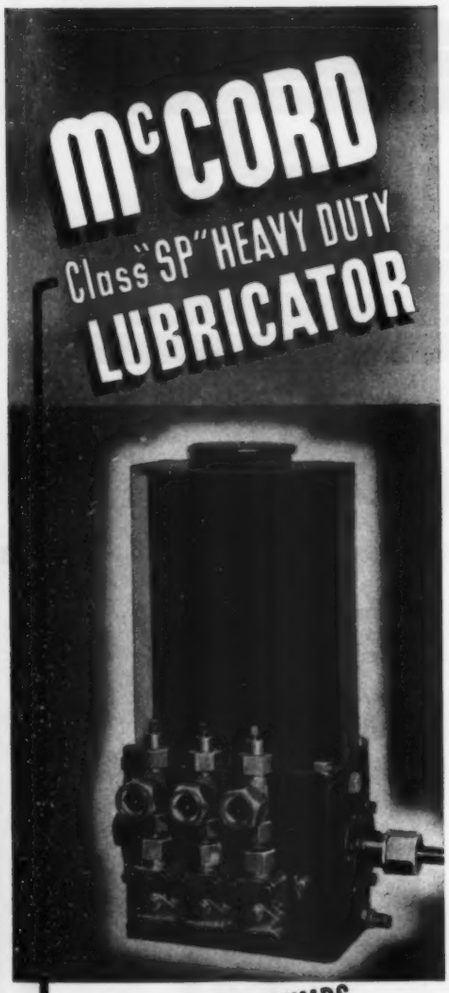
View of Our New 3-Acre Modern Oil Well Pump Factory at Huntington Park, California



AND FITTINGS PRODUCE MORE FLUID WITH LESS H.P.—LESS EMULSION—PREVENT BALL SPIN

Oil States Insert Liner Pump

MPANY - - - - - TULSA, OKLAHOMA
Pump Works



FOR SLUSH PUMPS AND DRILLING ENGINES

Thirty-three years' lubricator building experience is back of the design of the McCord "SP" heavy duty lubricator. The design and workmanship is of the highest type, working tolerances are extremely close, making the "SP" a most accurate and dependable lubricator. Designed by engineers with years of oil field experience it is the most rugged lubricator of this type on the market, designed to stand up under oil field service and to continue to deliver oil under the most severe service conditions.

OUTSTANDING FEATURES
Accurately made to render uninterrupted service under the most severe conditions.
Removable pump units.
Extremely flexible oil delivery.

FOR SALE BY
NATIONAL SUPPLY CO.
ALL BRANCHES
McCORD RADIATOR & MFG. CO.
DETROIT, MICHIGAN

a variable-speed, reversible, hydraulic transmission. A sprocket on the worm-gear shaft connects to the line shaft on the drawworks. The mechanism in the control-box, either manually or automatically, varies the speed or direction of the hydraulic transmission, which in turn controls the pipe through the self-locking worm gear and drawworks.

The advantages claimed include more speed, straighter hole, continuous feeding, more hole per bit, feeds up as well as down, helps prevent freezing pipe, recovers better cores, and faster reaming is made possible.

The O C S double-reduction pumping units are sturdy, compact and efficient machines for pumping oil wells where portable service equipment is desirable. These pumpers incorporate the high efficiency of roller chain and roller bearings in totally enclosed self-oiling units. They can be equipped with either electric motors or multicylinder engines. With a V-belt drive from the prime mover to the unit primary shaft and a double reduction of multiple roller chains a triple reduction is obtained between the motor and the polish-rod. An electrically welded steel case supports adjustable and self-aligning Timken tapered roller bearings which run in an oil bath. The wristpin bearings are Timken self-aligning and the beam bearings are weather-proof and self-oiling.

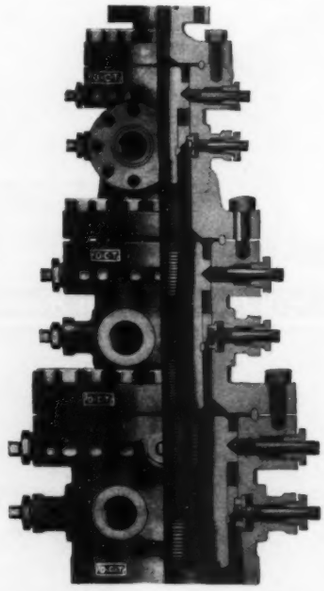
Oil Center Tool Co.

Booths 400, 401

In attendance

A. J. PENICK — K. T. PENICK
B. V. FISHER — W. HOLMES SMITH
H. C. STEWART — PAT McGUIRT
ED McCABE — WALTER BURKE
CARL MOUNT

The Oil Center Tool Co., Houston, Tex., will display equipment representative of its entire line. Included



will be various christmastree hookups ranging in test pressures to 10,000 pounds; a full line of forged-steel fittings; blowout-preventers, including the new stripper rubber type preventer; the new type "L" adjustable choke; well-control assemblies; and a representative showing of comparatively new casing- and tubing-heads.

The accompanying illustration shows O-C-T types "QB" and "QC" casing-heads flanged together, with an O-C-T type "Q-6" tubing-head flanged on top. This is one of the numerous well-control hookups that will be exhibited.

Oil and Gas Equipment Review

Los Angeles, Calif.

Space 1330 outside

Oil Well Supply Co.

Oil City, Pa.

Booths 532, 534, 536, 538, 540

In attendance

PERSONNEL OF "OILWELL'S" HOUSTON BRANCH

The Oil Well Supply Co. will exhibit two major innovations in rotary drilling machinery. This will be the initial showing of these outstanding new items of equipment.

The Oil and Gas Journal

Tulsa, Okla.

Booths 640, 741

C. M. O'Leary, Jr.

Houston, Tex.

Booth 445

Olympic Engineering Corp.

Los Angeles, Calif.

W-K-M Co. exhibit

Booths 504, 506, 508, 510, 605, 607, 609, 611

Space 1002 outside

Osage Metal Co.

Oklahoma City, Okla.

Booths 735, 737, 739

In attendance

V. B. LIKINS — R. E. HOLT
MAX D. WESTBROOK

An interesting exhibit is promised in the display of raw materials and a demonstration of hardsurfacing of bits with electric method recently developed by the Osage Metal Co. Tungsten, carbon, and cobalt, the components which are combined electrically in the manufacture of Osage metals, will be shown. The new method saves time, reduces operating costs, and increases efficiency, Osage officials say. The company uses both the electric and acetylene welding methods.

A display of Osage acetylene metal amalgamated rod, tube metal, inserts, and A and B hard-facing rods (both electric and acetylene) will round out the exhibit.

Oshman Outdoor Store

Houston, Tex.

Space 1312 outside

In attendance

C. L. KEITH — G. B. (SKELLY) SKELTON

The Oshman Outdoor Store will exhibit popular outdoor clothing for the oil man—boots, breeches, slacks, shirts and jackets—all nationally known brands that have proven their staying qualities in rough wear in the Gulf Coast oil-field area.

The Oster Manufacturing Co.

Cleveland, Ohio

Booths 714, 716, 718, 720, 722

In attendance

A. S. GOULD — H. C. GARDNER
L. M. GARDNER — P. E. WILLIS
S. PIASCIK — H. ZUERL

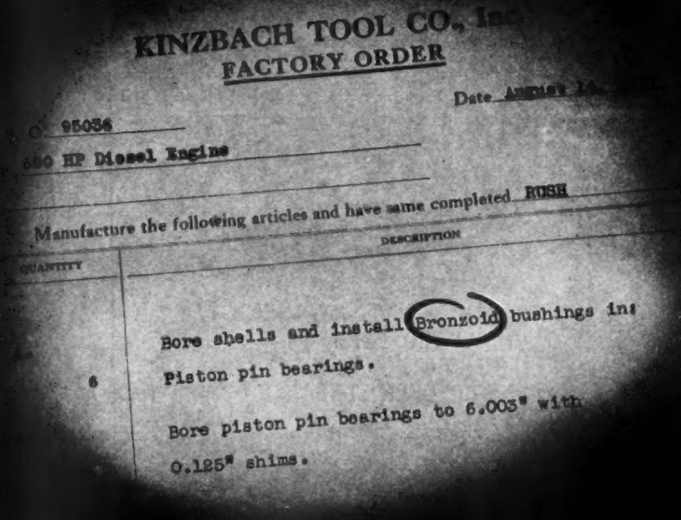
The Oster Manufacturing Co. will exhibit the complete Oster-Williams line of pipe-threading equipment for oil field use and the No. 222 torch-cutting machine for pipe intersections.

The line includes the No. 8-XHD Rapiduction heavy-duty pipe-threading and bucking-up machine; the No.

Tom Thumb chaser grinder

706 O.F. Wilco machine, equipped to cut correctly tapered, full-length A.P.I. threads without the use of a taper attachment; the No. 222 torch-cutting machine, which

Bronzoid "76"


KINZBACH TOOL CO., Inc.
FACTORY ORDER
Date
95036
550 HP Diesel Engine
Manufacture the following articles and have same completed RUSH
QUANTITY
DESCRIPTION
6
Bore shells and install Bronzoid bushings in
Piston pin bearings.
Bore piston pin bearings to 6.003" with
0.125" shims.

The Ultimate in Bearing Bronze

The equipment you are sending to the shop today for repairs, if purchased new, would probably be equipped with BRONZOID bearings and bushings, because many far-sighted oil field equipment manufacturers have recently standardized on this revolutionary bearing bronze.

But, you do not have to buy new equipment to experience the advantages of this new but proven bearing bronze . . . simply specify BRONZOID for bearings and bushings when you send your equipment in for repairs and it will be equal in potential bearing life to that of new equipment.

The better shops are familiar with BRONZOID. It is cast from the same patterns that are used for other bronze bearings, and is available as rough castings or finished to manufacturer's specifications.

BRONZOID "76" is recommended for such heavy-duty equipment as: diesel, steam and gas engines, drawworks, rotaries, crown blocks, pumping units, thrust bearings, thrust collars, pump liners, clutch pulleys, and similar equipment.

OIL CITY BRASS WORKS
Founders—Manufacturers—Machinists
BEAUMONT, TEXAS, U. S. A.

HOUSTON ADDRESS—634 North Edgewood St.
CORPUS CHRISTI ADDRESS—Port Avenue and Buffalo St.
EXPORT OFFICE—149 Broadway, New York, N. Y.

Specify BRONZOID ON YOUR NEXT OVERHAUL JOB

can be set to make any kind of cut, hole, miter, etc., used in preparing pipe for welding. One interesting machine will be the new Oster Tom Thumb chaser grinder, which is so constructed as to make it a simple job for anyone to grind chasers correctly.

Otis Pressure Control, Inc.

Dallas, Tex.

Spaces 1324, 1326 outside

In attendance

H. C. OTIS — J. U. SAMMIS
H. C. LAIRD — J. C. LUCCOUS

Otis Pressure Control Inc., will exhibit the Otis line of drilling and production control equipment as follows: Square kelly drilling-head and pressure-control drilling equipment; snubbing and control equipment and service for running and pulling tubing, packers drillpipe or casing under pressure; tubing closing tool; removable bottom-hole choke; mixing-valve; removable tubing-casing- and drillpipe-plugs; chucker-type paraffin-scraper and removable paraffin-scraper stop; removable drillpipe float-valve; removable differential operated tubing-valve; tubing-heads and stuffing-boxes for landing tubing under pressure; service for taking bottom-hole pressure.

Patterson-Ballagh Corp., Ltd.

Los Angeles, Calif.

Space 1211 outside

In attendance

J. M. CRAWFORD — C. A. RUF
P. L. BROOKS — V. E. ASHFORD
WM. SCHWEMLEIN — H. L. DICKSON
E. L. DYER — J. A. LYNE
E. M. FONTAINE — J. M. MORLAN
J. N. WOFFORD

Patterson-Ballagh will exhibit its complete line, which comprises casing-protectors, stabilizers, wire-line guide, swivel-bumpers and mud-gun. The company also will show its equipment used in the installation of casing-protectors. It will have on display the equipment used in the removal and salvaging of the protectors. It

will exhibit a working model of its wire-line spooler and will have an exhibit that shows the views taken in the factory. This exhibit will tell the complete story of the manufacture of the casing-protectors from the raw material to the finished product and the steps taken and care used in the manufacture of these protectors and Patterson-Ballagh rubber.

Parkersbury Rig & Reel Co.

Parkersburg, W. Va.

Spaces 1023, 1028, 1033 outside

The Parkersburg Rig & Reel Co. will exhibit its long-stroke pumping unit; 54-inch-stroke pumping unit; 74-inch-stroke pumping unit; 136-foot derrick, complete with substructure; pipe-racks and pyramid-type gin-pole; hydromatic brake.

Packing Engineering Corp.

Crawford, N. J.

Booth 148

In attendance

J. E. YOUNG — E. H. MILLER

The Packing Engineering Corp. will feature items containing new and unusual characteristics developed to give better packing service against particularly severe conditions. Some of the devices on display follow:

Ace-O-Pax. Greatly improved coil form in both square and round cross sections. A complete line of nongraphitic styles whose use eliminates pitting of high-carbon steel moving members in the presence of electrolytes.

Flexible packing hooks. They save time, avoid injured knuckles and reach around corners.

Permac jointing compound. Makes a metal-to-metal joint. Said to hold as well between pitted, warped and rough flanges as between smooth surfaces.

Two flexible metallic packings of improved construction.

A new ring packing impervious to petroleum, of particular value on plungers of outside packed pipe line pumps.

A braided packing for general oil and distillate use designed especially for use in contact with high-carbon alloy steels.

A gauge glass washer of improved construction and

ENSIGN CORDIALLY
Invites You
to Visit

BOOTH NO. 757 AT THE OIL-WORLD EXPOSITION HOUSTON, TEXAS, OCTOBER 11-16

also

★ THE NEW ENSIGN FACTORY BRANCH 900 SO. ERVAY ST., DALLAS, TEXAS ★

Ensign extends a cordial invitation to the Petroleum and allied industries to visit the new factory branch at Dallas, Texas, which was established to take care of the growing requirements of various Texas, Mid-Continent and Gulf Coast oil fields. Also, do not fail to visit Ensign's Exhibit (Booth No. 757) at the Houston Exposition, where you may inspect Ensign fine precision carburetors and fuel regulating equipment, performance and cost records, and other interesting power data.

ENSIGN CARBURETOR CO., Ltd.
HUNTINGTON PARK • CALIFORNIA
Branches: Chicago, Illinois; Dallas, Texas

Acme Heat Treated Drilling Jars
—for ENDURANCE

WITH heavier equipment, designed for faster and deeper drilling operations, drillers these days must have Jars that will "stand much punishment."

While Jars, necessarily, remain the same size, Acme knows the "secret" of making them to "take it"—in ordinary drilling, or "shaking bit loose."

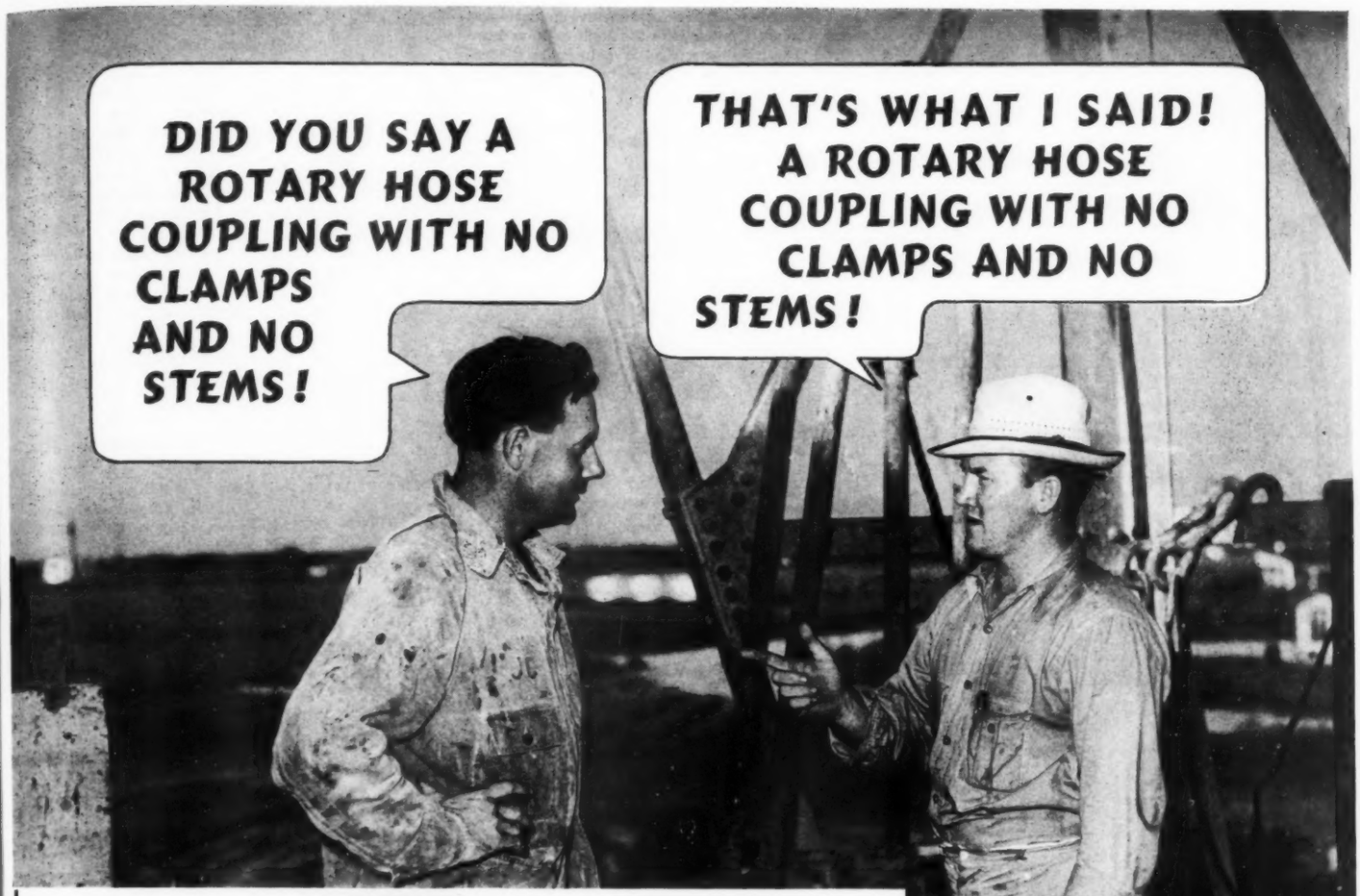
Acme Jars are uniform in high quality; made of especially selected Jar steel, and expertly heat treated for toughness.

WRITE FOR NEW CATALOG No. 12

Write for new Catalog, showing complete Acme "Drilmor" Line. Filled with information to aid you in meeting the toughest drilling and fishing problems.

ACME DRILLING & FISHING TOOLS

ACME FISHING TOOL CO.
PARKERSBURG, W. VA.
"The Mark of Highest Quality Since 1900"


DID YOU SAY A ROTARY HOSE COUPLING WITH NO CLAMPS AND NO STEMS!
THAT'S WHAT I SAID! A ROTARY HOSE COUPLING WITH NO CLAMPS AND NO STEMS!

BARNEY COUPLING

"Never heard of such a thing? Well, neither did anybody else until the BARNEY COUPLING hit the market. But they've all heard about it by now!"

Here are some facts about the BARNEY COUPLING, the answer to a drilling problem as old as rotary itself . . . . and we'd like for you to check these facts with users:

1. **It has NO CLAMPS . . . NO STEMS, and is built into the hose as an integral unit.**
2. **It positively eliminates high pressure leaks.**
3. **It is full-flow, having no reduction of inside area.**
4. **There is no metal in the bore of the hose to wear and cut the tube.**
5. **It is interchangeable from one "LONGLIFE" Hose to another.**
6. **It has been tested on 9,000-foot drilling at pressures from 1,000 to 3,000 pounds.**
7. **The BARNEY COUPLING is now available on all Goodall "LONGLIFE" Rotary Hose . . . . and NOWHERE ELSE!**

SEE IT ON DISPLAY, OIL-WORLD EXPOSITION, HOUSTON, OCT. 11-16, Booths 750-752

HOUSTON OCTOBER 11-16-1937
SEE OUR EXHIBIT
OIL WORLD EXPOSITION

GOODALL RUBBER CO.

1606 Maury Street, Houston, Texas.
Philadelphia New York Pittsburgh
Chicago Cleveland

GOODALL MECHANICAL CORP.

San Francisco Los Angeles Seattle
MILLS: TRENTON, N. J.

oilproof material recommended particularly for use on process tanks containing light fractions.

A device for keeping sand out of the stuffing-boxes of outside packed pipe line pumps.

Efficient service station pump-ring sets conveniently packed.

Polish-rod ring sets.

H. L. Patton Co.

Houston, Tex.

Spaces 1035, 1036 outside

P & D Specialty Manufacturing Co.

Houston, Tex.

Booth 402

Peerless Pump Division, Food Machinery Corp.

Los Angeles, Calif.

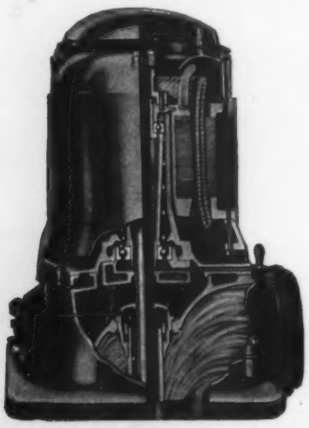
M. N. Dannenbaum Co. exhibit

Booths 516, 518, 520, 621

In attendance

M. N. DANNENBAUM C. W. SCAMMAN

The Peerless pump exhibit will include a running model of deep-well pump. An interesting part of this model will be a demonstration of the Peerless patented double-seal feature which illustrates the loss of water



when pump-impellers become worn and shows how this condition is remedied through adjustment at the pump-head.

A large-model deep-well turbine pump-head will be exhibited together with sectionalized units of pump-bowls line shafting and other parts.

Petroleum Daily

Dallas, Tex.

Space 1333 outside

Petroleum Electric Power Club

Houston, Tex.

Booths 9, 10, 11

In attendance

A. J. WALKER P. H. ROBINSON
W. H. STUEVE G. A. FORSYTH
K. K. KREAMER E. L. ROBINSON
J. R. MONTGOMERY J. E. BROWN
F. M. AUSTIN G. W. CURRY

The exhibit of the Petroleum Electric Power Club will be a display depicting the many applications of the use of purchased electric power in the oil industry. Numerous electrical machines and equipment which are used in oil production pipe-lining and refinery will be shown. Special emphasis will be given to recent developments and improvements in this equipment. Among the items displayed will be motors, gearmotors and certain associated transmission equipment such as variable-speed units which have general use throughout the industry.

Various types of motors for oil-well pumping will be shown also motors and pumps for water systems. In the pipe-line division a complete motor-driven centrifugal pipe-line pump of modern design will be shown. Another article of interest will be the rectifying unit used for the cathodic protection of pipe lines.

A display of equipment such as transformers capacitors and controls will be presented to show advances and improvements made in the past year. Engineers and salesmen who are familiar with the application and use of electric power and electrical machinery in the petroleum industry will be in attendance to demonstrate the use of the equipment displayed.

The Petroleum Engineer

Dallas, Tex.

Booths 218, 220

Petroleum Service Bureau

Tulsa, Okla.

Booth 714-A

Petroleum Tire & Supply and United States Rubber Products, Inc.

Houston, Tex.

Spaces 1200, 1302 outside

Philadelphia Steel & Iron Co.

Conshohocken, Pa.

Maintenance Engineering Corp. exhibit

Booths 608, 610, 612, 709, 711, 713

Pittsburgh Equitable Meter Co.

Pittsburgh, Pa.

Booths 335, 337

In attendance

A. J. KERR M. D. GILBERT
JAMES H. BAKER E. P. MARTIN
C. K. MADISON

The Pittsburgh Equitable Meter Co. will exhibit the Eureka water meter, No. 0 Emco meter, 2-inch gasoline meter, 1-inch ejector regulator, 1-inch spring-type field regulator, 2-inch low-pressure balanced valve regulator, 2-inch high-pressure balanced valve regulator, No. 142 and No. 143 Emco Nordstrom valves, "Hypreseal" type Nordstrom valves.

The Merco Nordstrom Valve Co. will exhibit jointly with the Pittsburgh Equitable Meter Co.

Pittsburgh Valve & Fittings Corp.

Barberton, Ohio

Space 1219 outside

In attendance

E. C. BOSTOCK C. L. SELKREGG
LESTER D. SEYMOUR V. A. WALKER
T. W. HARVEY W. C. GOZA
E. H. GADDIS M. A. BRADBURN
C. N. WEAKLEY F. F. TRANCHINA
J. E. JONES

The Pittsburgh Valve & Fittings Corp. will show bronze valves of different types, malleable and cast-iron fittings, screwed and flanged unions and standard

pipe nipples up to hydraulic seamless of use in the oil and gas industry, but only a small part of its trademarked products.

Among the exhibits will be the new iron-body valve illustrated.

Pomona Pump Co.

Pomona, Calif.

Booths 100, 102, 201

Portable Rig Co.

Houston, Tex.

Booths 244, 246, 248, 250, 252, 345, 347, 349, 351, 353. Spaces 1003, 1004, 1005, 1006 outside

In attendance

L. D. CAIN L. E. HODGES
O. D. SMALL JOHN KLUPPEL

The exhibit of the Portable Rig Co. will include two portable rigs, models R-876-S and R-810-6, in operation on a derrick floor. The derrick will be built on a low sub-structure.

Also in the exhibit will be two utility units composed of electric generator, air-compressor and water pump, as well as a representative showing of Waukesha engines using natural gas, gasoline and diesel fuel.

Wm. Powell Co.

Cincinnati, Ohio

Booths 147, 149

In attendance

E. K. PIERCE JAMES COOMBE
WILLIAM HEILIG

The William Powell Co. will exhibit a full line of bronze, iron, steel and malleable-iron valves, designed for use at the well and in the refinery. These will include gate, globe, angle, manifold and test gate valves. Mechanical-lift plug-cocks will be shown.

Precision Scientific Co.

Chicago, Ill.

Booths 344, 346

The Pressure Drilling Co.

Space 1008-B Outside

In attendance

JAMES C. FORTUNE W. R. WALNE

The Pressure Drilling Co., Houston, Tex., will have on exhibition the following items from its complete line of pressure drilling equipment.

1. A round flush-joint grief-stem which can be sealed by the same blowout-preventer equipment that handles the rest of the drillpipe.

2. A round grief-stem drive bushing that fits squarely in the master bushing of any rotary table, transmits the full torque in rotating the kelly and at the same time holds up no weight.

3. A back-pressure valve consisting of only two pieces and having a fluid capacity greater than the tool joints in the drilling string in any type from external flush drill-piping to full hole A.P.I.

4. An adjustable rotary flow-bean for taking drill cuttings and cavings from the pressure carried on a well to the atmospheric pressure of the slushpit.

Productive Equipment Corp.

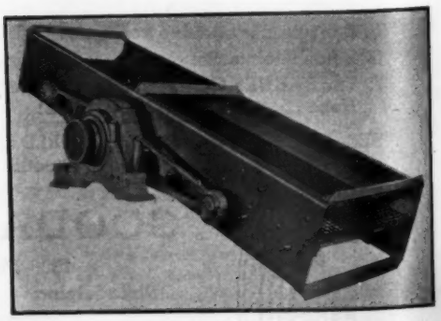
Chicago, Ill.

Spaces 1112, 1114-A outside

In attendance

L. E. SOLDAN L. H. LEHMAN
C. J. McLERNON

The exhibit of the Productive Equipment Corp. will be a quarter-size model of the company's mud-screen, the Mudhog. This unit is of the positive eccentric vi-



brating type, with balanced eccentrics. The unit represents a complete portable outfit consisting of screen, feeding-box and mud-chute, mounted on heavy skids for easy handling.

The Mudhog has a full floating shaft with oil lubrication, all moving parts and bearings being tightly sealed within a case. Such construction not only pre-

PROTECTION

Danger of SOUR CRUDE

COP-NIC protects the life of your storage tanks against the ruthless destructiveness of sour crude . . . assures you perfect storage of this hard-to-handle crude.

AND HERE'S WHY: COP-NIC steel with its special galvanized coating makes Columbian Bolted Steel Tanks highly resistant to corrosive action and perfect for use in sour crude districts. The sheets from which these tanks are made of selected base material. An exclusive galvanizing process is used to put on a heavy coating of zinc spelter which is applied in such a manner as to become virtually a part of the steel itself, minimizing the possibility of any pitting or loosening of the coating.

The unusual results obtained with these COP-NIC Galvanized Tanks are attributed to the process used in preparation of the sheets, of the coating, and the manner of fabrication which does not destroy or render ineffective the galvanized coating.

Protect your tank investment with Columbian COP-NIC Tanks. Write today for free Columbian Tank Catalog giving complete information about COP-NIC Tanks.

COLUMBIAN STEEL TANK CO., Dept. OJ
KANSAS CITY, MO., U. S. A.

COLUMBIAN COP-NIC GALVANIZED BOLTED STEEL TANKS

vents foreign matter from getting into the vibrator parts, but eliminates danger from exposed flywheels and other moving parts. The Mudhog is built by the manufacturers of the Jigger and Selectro vibrating-screens which have been used throughout the country among the chemical and process industries.

Production Equipment Co.

Beaumont, Tex.

Norvell-Wilder Supply Co. exhibit

Booths 104, 106, 108, 110, 112, 114, 116, 118, 120, 205, 207, 209, 211, 213, 215, 217, 219, 221

%Proprotioneers, Inc.%

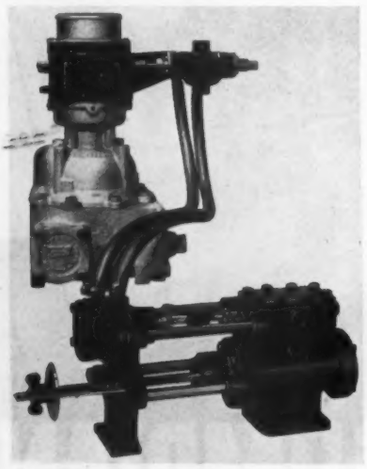
Providence, R. I.

Booth 932

In attendance

RUDY LOWE

%Proportioneers, Inc.%, and the Builders Iron Foundry will have a joint display of chemical proportioning equipment suitable for a wide variety of refinery services. With the present trend toward decreasing tankage capacity and the ever present demand for more uniform products more economically produced, %Proportioneers% equipment for continuous treating, blending and sampling has been received with favor by American and foreign refiners. Equipment on display will include:



1. Standard units for gum-inhibiting, coloring, and treating gasoline in transit.
2. Equipment for acid-treating or blending of lubricating oils.
3. Equipment for blending gasolines and asphalts.
4. Dry feeders and proportioning-pumps controlled to feed in proportion to flow through office plates or Venturi tubes.
5. Feeders for handling highly corrosive treatment of large flows and for constant-rate chemical feeding.
6. Steam, gas, air, and liquid meters.

Pyrene Manufacturing Co.

Newark, N. J.

Booths 617, 619

In attendance

J. P. MALONEY — W. L. FERRIER
B. S. ALLEN — B. F. COVINGTON
DAN BUTLER

Several new fire-extinguisher products will feature the exhibit of the Pyrene Manufacturing Co. A new Phomaire stationary system and two Phomaire play pipes, foam-making water nozzles for producing large quantities of foam with a minimum water supply, will be shown. This revolutionary method of making foam mechanically rather than chemically utilizes a special solution, which together with air is drawn into the water stream.

Also on display will be the new Hydrogarde water-type and Wintergarde antifreeze-type extinguishers, both of which expel their liquid contents by means of pressure from a small carbon-dioxide gas cartridge within the extinguisher.

Pyrene's standard line of hand and wheeled fire-extinguishers of the vaporizing liquid, foam, soda-acid, and antifreeze types, as well as carbon-dioxide equipment of its associate, C-O-Two Fire Equipment Co., Newark, N. J., will be displayed, as will standard, extra-heavy and "Doubleduty" bar-reinforced Pyrene tire-chains.

Pyrene will have detailed information about its new power-driven chain-repair machine which is said to remove worn cross chains and replace them five times faster than ordinary hand or bench tools, but will not have the machine on display.

J. P. Ratigan

Los Angeles, Calif.

Booth 702

In attendance

J. P. RATIGAN — J. J. CAVE
L. W. HENSHAW — C. J. RATIGAN
G. M. SEYBOLD

J. P. Ratigan will have on display some of his regular equipment and a number of new and improved devices, including spring rod hooks, tubing-tongs and sucker-rod and coupling wrenches for any make or size of sucker-rods.

Also will be shown an oilless pitman stirrup bearing and two types of oilless beam-hangers. When the Ratigan No. 117 oilless pitman stirrup bearing and No. 115 or No. 116 oilless beam-hanger are used in conjunction with the No. 12 oilless center iron beam-rocker (shown in the illustration), the beam is completely oilless from one end to the other, eliminating the necessity of oiling any of this equipment.

Other new devices on display will be a shock-absorber and a sucker-rod elevator, so constructed that it cannot tip. Another device to be shown is the No. 85 swivel-type rod-hanger, also used for hanging macaroni tubing.

Raybestos Division of Raybestos Manhattan, Inc.

Bridgeport, Conn.

Frick-Reid Supply Corp. exhibit

Booths 350, 352, 354, 356, 451, 453, 455, 457

Reed Roller Bit Co.

Houston, Tex.

Booths 124, 126, 128, 130, 225, 227, 229, 231.

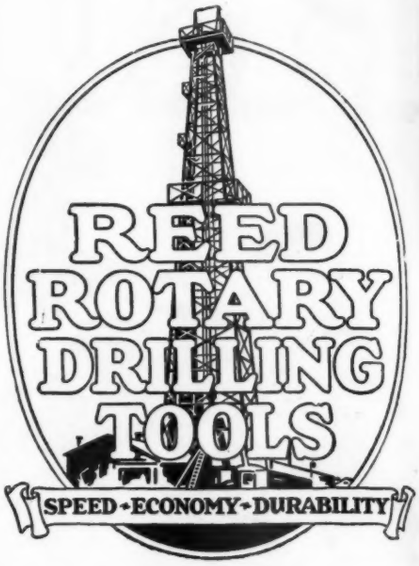
Space 1009 outside

In attendance

MR. CHILDS — MR. HAMAKER
MR. HARRINGTON — MR. STOKES
MR. ANDERSON — MR. JOHNSON
MR. JANCO — MR. HOFFOSS

Using modernistic architecture as a background for its display, the Reed Roller Bit Co. will exhibit tools for every phase of rotary drilling. From each of the four corners a tower in keeping with the modernistic design will rise, each one embodying a different type of rotary drilling tool. For the visitor's convenience and comfort, the Reed company has included lounges and chairs in its modernistic booths.

Among the tools to be exhibited will be the Reed DK roller bits, Reed replacable-blade fishtail bits,



Reed welded-in blade drilling-bits, Reed reamers, Reed tooljoints, Reed Kor-King coredrill for hard and soft formations, Reed retractable wire line collapsible-blade drilling-bit and core-barrel, Reed forged alloy steel drill-collars, Reed rotary engines, Reed valves, and Martin Decker products.

Red Rex Corp.

Houston, Tex.

Booth 153

In attendance

C. E. GIRTEN — R. H. RATLIFF
C. Q. TURNE

The Red Rex Corp. will exhibit its line of pipe-unions. Those made of steel are said by the company to withstand pressure of 8,000 pounds; those made of malleable iron, 6,000 pounds.

Rector Well Equipment Co., Inc.

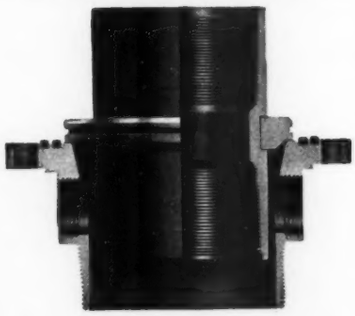
Fort Worth, Tex.

Booths 602, 701

In attendance

C. L. CRON — W. P. KNIGHT
J. W. MASSEY — E. W. BROCKMAN
C. W. ZARTMAN — L. L. RECTOR

Rector Well Equipment Co. will have a 10-by-20-foot exhibit showing the complete line of Rectorheads, the Rector tubing-head, Rector drilling-flanges and



the Rector cable-tool drilling-head. Included in the line of Rectorheads will be shown for the first time the type EH 10,000-pound-test forged-steel head for

AN IDEA

ON SELECTING ROTARY HOSE

Buy rotary hose with an eye to lowering your operating costs. Then look into the cost-cutting possibilities of HEWITT Rotary Hose. Added service is actually built in. Elongation has been reduced to an absolute minimum, but all the flexibility is there. And, the stamina is there to outlast many times the life of ordinary rotary hose. HEWITT Rotary Hose is also made with enlarged ends . . . impressively reinforced . . . to retain the full diameter of the hose when nipples are inserted. All these features have been built into HEWITT Rotary Hose to make a noticeable reduction in your operating costs. If you think a saving in operating cost is worth looking into, find out more about HEWITT Rotary Hose. Talk it over with a HEWITT distributor.

HEWITT
RUBBER CORPORATION
BUFFALO, NEW YORK

HOSE • CONVEYOR AND TRANSMISSION BELTS • PACKING

highest pressures known today, and the type C cast-semisteel 1,000-pound test head.

Regan Forge & Engineering Co.

San Pedro, Calif.

Booths 404, 406, 505, 507

In attendance

JAMES BEGG W. S. PROCTOR

The Regan Forge & Engineering Co. will display the type EB crownblock, type E crownblock, type F heavy-type crownblock, 76-inch traveling-block, type K blow-out-preventer and cast alloy steel hooks.

Reilly Tar & Chemical Corp.

Indianapolis, Ind.

Booth 929

In attendance

L. R. ROGERS

The Reilly Tar & Chemical Corp. plans to exhibit its complete line of protective coating materials, including Reilly pipe enamels and primer for the protection of oil and gas transportation lines, water lines and tanks, against corrosion and electrolysis; cold-application coating No. 5, similar to the enamels, but applied cold; and cold-application coating No. 40, a metal paint for pipe, structural steel and any metal surfaces exposed to corrosive action.

The enamels and C.A. No. 5 coating materials are said to be able to withstand temperatures as low as minus 30° F. without cracking or checking, and approaching 200° F. without sagging. The bond provided by Reilly primer is said to be excellent, and the manufacturers say the enamel cannot be stripped from this pipe at 160° F. These materials, it is said, give permanent protection, are not affected by soil stress, and prevent corrosive action of acids, alkalies and electrolysis.

Joseph Reid Gas Engine Co.

Oil City, Pa.

Frick-Reid Supply Corp. exhibit

Booths 350, 352, 354, 356, 451, 453, 455, 457

PROFITS START

when you hit "pay sand"

The shorter the drilling time, the lower its cost, and the sooner you start to "cash in."

You can reduce costly delays and shutdowns with Spang Cable Tools. They give you the strength and balanced uniformity necessary for economical, dependable service.

Cut down on drilling costs. Specify Spang "Higher-Standard" Cable Tools for the entire string.

Fig. 747 Fig. 718

SPANG PACKERS

Spang and Company have devoted forty years to the development of quality Packers. Many types, many sizes; at your oil-field distributor's.

SPANG & COMPANY

BUTLER, PENNSYLVANIA

Specify Spang "HIGHER-STANDARD" CABLE TOOLS

Reliance Regulator Corp.

Alhambra, Calif.

Westcott & Greis, Inc., exhibit

Booths 728, 730

Republic Rubber Co.

Youngstown, Ohio

Frick-Reid Supply Corp. exhibit

Booths 350, 352, 354, 356, 451, 453, 455, 457

Republic Steel Corp.

Cleveland, Ohio

Booths 745, 747, 749, 751, 753, 755

In attendance

W. M. NECKERMAN C. H. ELLIOT
J. E. HOLMES C. W. EAST
G. F. HESS HOYLE JONES
R. W. WORKING C. W. RUTH

The Republic Steel Corp.'s exhibit will give special prominence to its heat-treated casing, designed to afford lower setting depths for lighter weights without impairing the safety factors. The company will show also bell-ended casing for welding in the hole and bell-ended joints, welded and unwelded. There will be a display of oil-field equipment made from the company's Agathon alloy steels.

The Ridge Tool Co.

Elyria, Ohio

Spaces 1226, 1228, 1230 outside

In attendance

W. L. PARCELL R. C. CHAMBERLAIN
SETH SMITH JAMES B. GRAHAM
J. J. McINTOSH

The Ridge Tool Co. will show its line of pipe tools. By means of a redesign alone in the Rigid wrench, a reduction of 75 per cent in repairs and replacements is said to have been effected. These wrenches are all heavy-duty, with handle and housing made of double-strength alloy metal. Jaws are of chrome molybdenum alloy, heel jaw replaceable, full-floating hook jaw has handy pipe scale.

Greater strength and precision, with protection against "cocking" or "wobbling," are found in the Rigid threaders. No. 65R threads four sizes of pipe, 1-inch to 2-inch, with one set of dies. Simply move the change-plate to size of pipe, and the threader is ready for work. New Rigid-type workholder sets to size mechanically and tightens with one screw.

Rigid pipe-cutter frames are made with internal reinforcing of tempered steel which will not break or warp, and shaped to protect the cutting blade. The rollers are interchangeable to make a three-wheel cutter. Wheel-blades are of special alloy, coined, hammered, heat-treated and assembled in a steel-bearing hub. There are also Rigid tubing-cutters for one-eighth inch to 2-inch tubing.

Rigid pipe-vises are conventional in design, with the exception of the new stream-lined chain vise, but have unusual features. All types have pipe-rests and pipe-benders. No-mar jaws are available in yoke vises of 2-inch and 2½-inch capacities and frames are of strong special malleable. These are made in the following types: Yoke bench, post, stand; chain bench, post, stand; kit vises.

A new method of taking out broken threaded ends of screw is made possible with the Rigid screw- and pipe-extractors. This saves dismantling, shutdowns and expensive delays. Extractors are made with straight flutes, the tool straight from end to end, so it freely passes through holes to engage thin shells of drilled-out broken ends at depths. Extractors are furnished in complete sets with Rigid drill-guides and Rigid special drills for taking out any diameter screw end.

Robinson Orifice Fitting Co.

Los Angeles, Calif.

Booths 728, 730

Royal Manufacturing Co.

Booth 4

In attendance

F. W. JOHNS WM. G. CUMMINGS
CHAS. R. STOTTS W. R. MALLORY
L. H. HOLLINGSWORTH

The Royal Manufacturing Co. of Tulsa will have a small but interesting exhibit showing the Royal portable

SAFE at any depth.

Increase drilling speed.

Easy to change cutters.

Vertical hole assistance.

Economical in service.

Ream round, full-gauge hole.

Stabilize bits & barrels.

Reduce danger of twist-offs.

Eliminate "tight" holes.

Angle of cutter correct.

Maximum wall contact.

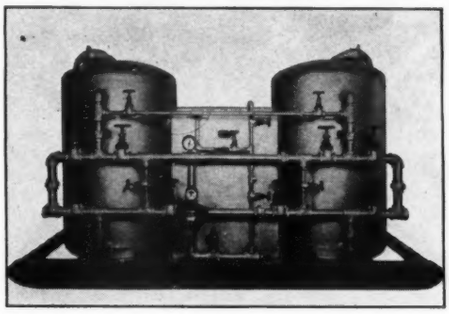
Effective in all formations.

Relieve "walking" of bit.

Shear and slice evenly.

water-softeners for drilling rigs. These softeners are being used by hundreds of drillers throughout the oil fields, especially in West Texas.

The company also does an extensive water engineering business. L. H. Hollingsworth, head of the com-



pany's water department, will be in charge and will discuss any water problems with visitors.

Other specialties manufactured by this company will be on display against a background picture of an oil rig. They are Royal tool joint dressing, Royal 900° Aluminum paint and Royal 700° black paint.

Walter Ruska & Co., Inc.

Houston, Tex.

Booth 216

In attendance

WALTER RUSKA

Walter Ruska & Co., Inc. will show scientific instruments for geophysical and petroleum engineering work. Among them will be moving coil galvanometers and other instruments for seismograph prospecting. These instruments are of compact design and have high sensitivity. The new galvanometer is of single-or-multiple-unit design with exchangeable coil suspensions. All adjustments can be made from the outside without removing the coil suspension.

Among the petroleum engineering instruments will be devices for determining the porosity and permeability of sand cores, a volumetric mercury pump and other high-pressure equipment. The new mercury pump is a screw-feed plunger pump of high accuracy calibrated to measure volume displacements with an accuracy of .01 cc. All of these instruments are made in the company's shop in Houston, Tex.

The company will show also various other scientific and optical instruments for the oil industry.

Safety Equipment Service Co.

Cleveland, Ohio

Booth 212

Schlumberger Well Surveying Corp.

Spaces 1329, 1331 outside

In attendance

J. L. MATHIEU — L. W. STORM
A. A. PEREBINOSSOFF — H. B. MARCOVITCH
GLENN J. BAKER — F. G. TAVES

The Schlumberger Well Surveying Corp., Houston, Tex., will exhibit charts illustrating the main uses of the company's electrical logs, i.e., correlations, determining the fluid content of the formations, etc.; also charts illustrating the main application of temperature measurements in wells, i.e., location of gas sands, correlation between cased or uncased wells, location of cemented zones, etc. A demonstration set will illustrate the working of the Schlumberger thermometer.

Examples of water-flow problems solved by the Dale photoelectric method will be shown and there will be an exhibit of a Dale photoelectric instrument; also a demonstration set illustrating the Dale method.

A Schlumberger wall sampler and cores taken with it will be displayed.

Sealed Power Corp.

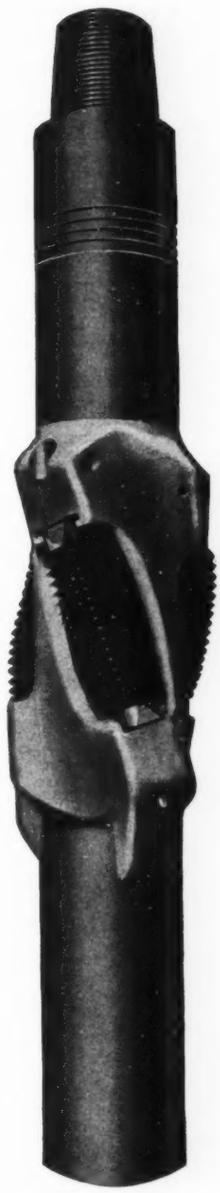
Muskegon, Mich.

Space 1213 outside

In attendance

PAUL C. JOHNSON — C. ALLEN FULMER

The Sealed Power Corp. will exhibit a complete line of Sealed Power piston-rings for industrial uses. Included will be samples of Sealed Power plain compression-rings, the joint-seal compression-ring designed for



THEY WILL FIT PROFITABLY IN ***YOUR*** OPERATIONS . . . .

SECURITY
ENGINEERING COMPANY

Whittier, California, U. S. A.

WILSON SUPPLY CO., Houston, Tex.

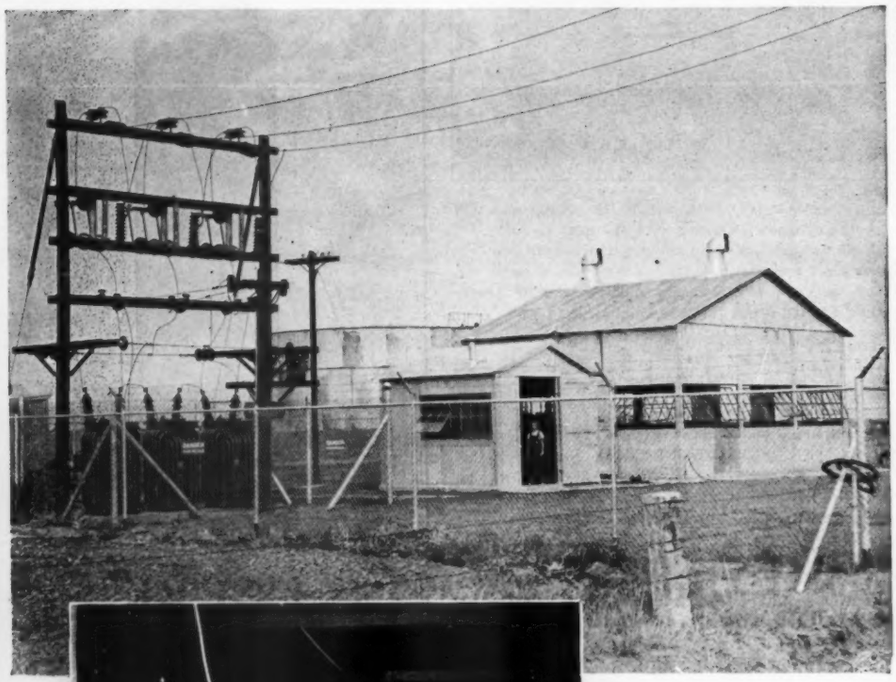
John H. Baird, 420 Lexington Ave., New York, N. Y.

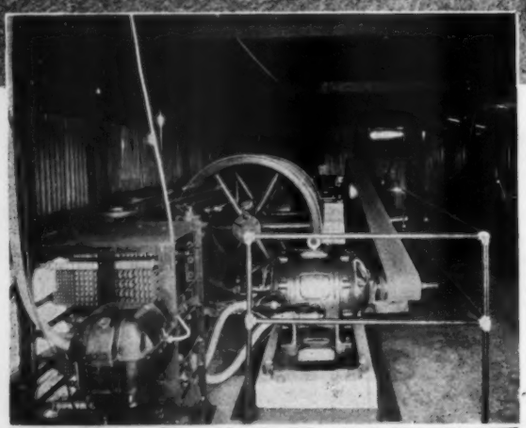
S. B. Schnitter, No. 4 Mary St., Port of Spain, Trinidad, B. W. I.

Here's how

Purchased ELECTRIC POWER...

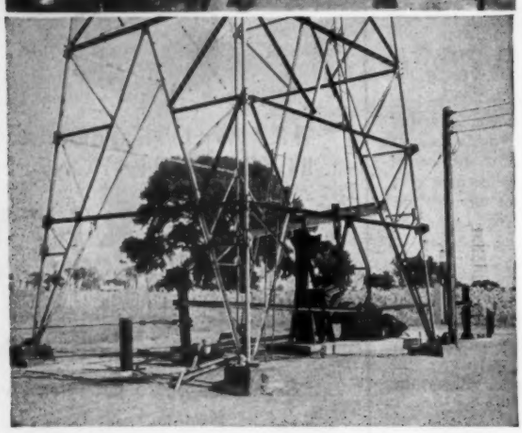
has increased EFFICIENCY AND PROFITS for OTHERS





TOP—Here is one of many pipeline stations operated by Purchased Electric Power. Located near Great Bend, Kansas, this station handles 32,000 barrels of oil every 24 hours through an 8-inch line.

This picture shows a 35 H.P. electric oil well pumping motor in operation. After the electric equipment was installed the cost of operation showed a 25% reduction while oil production showed an increase due to more continuous operation with electric drive over former equipment used.



Here is a four-well hookup, operated with one 9/16/25 H.P. motor. The actual measured load is 11.6 H.P. with the four wells operating 12 hours per day and producing 50 barrels of oil and 20 barrels of water. A total of 24 wells are operated by this company in the Mid-Continent field by similar methods.

PROFIT? BY USING Purchased ELECTRIC POWER

ASK YOUR ELECTRIC POWER COMPANY FOR FREE ADVICE

- Low Installation Cost
- Greater Efficiency
- Extreme Portability
- Greater Salvage Value
- Flexible and Dependable
- Safe, Quiet and Clean

Our representatives welcome you to the Petroleum Electric Power Club Booth at the Oil-World Exposition, Houston, Oct. 11-16.

PETROLEUM ELECTRIC POWER CLUB

use in worn equipment so that the opening at the joint is completely sealed off, across the face of the ring as well as against leakage from behind the ring.

Corrosion-resisting rings in any type desired will be shown. These rings are resistant to the action of sour gases or oils and are advised for use where lubrication is scanty or below normal, such as with gas compressors or the upper rings on diesel pistons, to assure minimum liner wear, under high temperatures and poor lubrication. Sealed Power Dubltite rings will also be shown for those who require an effective two-piece ring. For the proper control of oil two types of oil rings will be shown, the bevel and grooved oil scraper rings. The latter is designed to maintain, as the ring wears, proper scraper action on the cylinder wall for oil control. The Super Drainoil ventilated oil control ring, designed to control abnormal oil conditions effectively, will be displayed.

Scintilla Magneto Co., Inc.

Sidney, N. Y.

Booth 13

A joint exhibit will be given by Scintilla Magneto Co., Inc., Sidney, N. Y., and the Zenith Carburetor Co., Detroit, Mich., both of which are subsidiaries of Bendix Aviation Corp.

Bendix and Scintilla magnetos will be shown for all types of oil-field engines. These include low fire hazard units for operation in inflammable atmospheres. A new line of Bendix mica insulated sparkplugs for these engines will be shown for the first time, and a full line of Zenith carburetors and filters will be displayed.

Service Pattern & Model Works

Houston, Tex.

Booth 413

In attendance

H. C. BRINKMAN T. W. RUSSELL

The exhibit of the Service Pattern & Model Works will demonstrate the second phase in manufacturing the majority of the products shown by the exhibitors. The company will have various patterns on display covering both the drilling and production ends of the oil industry. It also will show as an educational feature, a mold and cores that go into the making of a Reed Sport model bit-head, which should be of interest to those not familiar with foundry practice.

Security Engineering Co.

Whittier, Calif.

Wilson Supply Co. exhibit

Booths 238, 240, 339, 341

Models and full-size Sievers reamers will be displayed by the Security Engineering Co. Demonstrations will

illustrate the effectiveness of the reamers with cutters set at an angle which permits them to lead into the formation with a slicing, shearing action, resulting in fast reaming of round, full-gauge hole. Other demonstrations will show how the barrel-shaped cutters contact from 25 to 35 per cent of the circumference of the hole, with the result that the drilling string is stabilized and rotates on a true vertical axis.

Oil men will find other features of the Sievers reamers interesting in point of reaming and stabilizing requirement. For example, the patented locking device is said to provide assurance against loss of parts in the hole, but permits quick and easy assembly and disassembly on the derrick floor. Both single three-point and double-three-point reamers will be on exhibit.

Scully Steel Products Co.

Chicago, Ill.

United States Steel Corp. exhibit

Booths 264, 364, 365, 366, 465

Most OIL MEN *Prefer*

This Completely Air Conditioned Hotel

HERE you find a happy combination of all those qualities which make living worthwhile. Important is the fact that every room and every unit is air conditioned for constant comfort — summer and winter. This famous hotel is San Antonio's finest place in which to stop and stay.

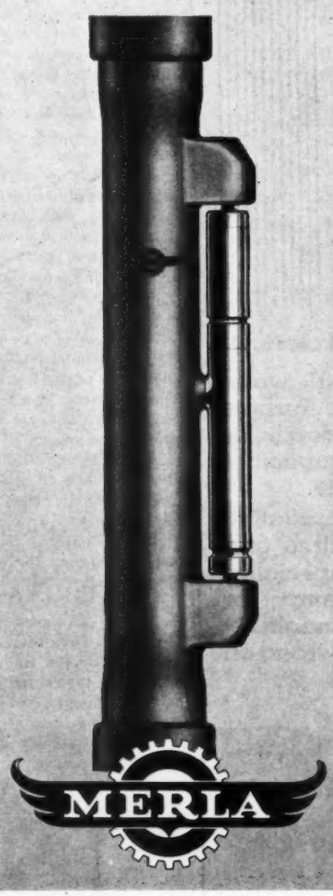
PAUL McSWEEN
President

C. M. HEETER, SONS & CO., INC.
MAIN OFFICE AND WORKS, BUTLER, PA.

"Heeter's" Packers and Swabs

Heeter's Improved Patent Swabs, Corrugated Friction Sockets, Wire Line Pumping Outfits, Sand Pumps and other Gas and Oil Well Materials.

MERLA FLOW VALVE *GasLift*



Proof of Performance

The process of flowing oil wells by the installation of Merla Gas Lift Flow Valves is becoming general. Case histories of Merla installations in hundreds of wells prove that wells of any depth can be produced efficiently and economically, after they have ceased natural flow and/or will not flow upon completion.

Merla Book Free

Your copy of this interesting book, which is more than a catalog, has been reserved. Tell us where to mail it.

MERLA TOOL CO.
P.O.Box 2576, Dallas, Texas

LUFKIN

"Challenge"

STEEL TAPES

THE POPULAR TAPE FOR ALL GENERAL MEASURING

Highest grade 3/8" or 1/2" wide steel line. Will give dependable service in construction work and many other fields. Stands up well in continuous and hard use. Genuine leather case. Folding flush handle opened by push pin. Measurements guaranteed accurate.

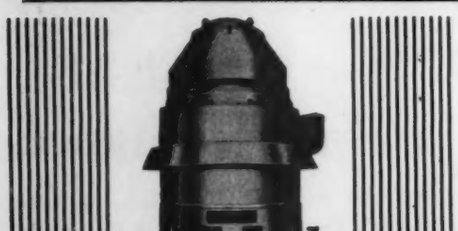
See Listings in Composite Catalog of Oil Field and Refinery Equipment.

SEND FOR CATALOG NO. 12

THE LUFKIN RULE CO.

SAGINAW, MICHIGAN

105-119 Lafayette St., New York City



"The Most Copied Pump in America"

For high lifts and general water service, Pomona Deep Well Turbine Pumps are dependable for depths as great as 1000 feet, and for capacities up to 8000 gallons per minute.

Two complete plants—aggregating the largest turbine pump area and capacity in the world—specialize exclusively on Pomona Pumps for handling water. For dependability and economy, you can't go wrong on Pomonas.

POMONA PUMP CO.

Manufacturing Plants: Pomona, Calif. - St. Louis, Mo.

Sales Offices:

New York - Chicago - Los Angeles - San Francisco

POMONA

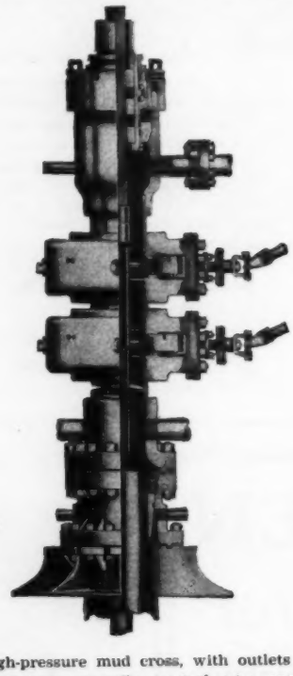
TURBINE PUMPS

Shaffer Tool Works

Houston, Tex.

Booths 317, 319, 321

The Shaffer Tool Works will show its complete line of high-pressure drilling and control equipment. A typical Shaffer hookup, here illustrated, will be on exhibit, consisiting of a landing-base; spool-type landing-



head; high-pressure mud cross, with outlets for mud-line connections; two cellar control gates, one a master gate for protection when the pipe is out of the hole and one for protection with pipe in the hole; and a rotating blowout preventer, equipped with the new stripper, not shown in this view. A demonstration of the Shaffer cellar control gates operating under pressure will be a feature.

The Universal tubing control head, a simple, compact unit, serves as a blowout-preventer while drilling in and tubing the well. Generally used with a Shaffer tubing flow control valve at the bottom of the tubing, to permit raising or lowering the tubing at any time without necessity of killing the well. Shaffer adjustable flow-beans afford an effective means for controlling the flow of liquid through a line and regulating the pressure and the rate of flow with extreme accuracy. The new hard-metal inserts, which add greatly to the efficiency and life of these flow beans, will be demonstrated. Demonstrations will show the positive action of Shaffer rotary releasing sockets, and the ease with which they can be released when desired.

Shaffer double-bowl rotary releasing sockets have an upper set of slips to grip the drillpipe and a lower set for gripping the tooljoint. The packing element above the upper bowl packs off around the drillpipe. The tooljoint is packed off by a packer element assembled in the guide-shoe, so that the packer fits close against the lower end of the tooljoint slips. This tool is always ready to run (without changing the slips) and takes hold of and packs off the fish, regardless of whether the twistoff has occurred in the pipe or the tooljoint.

Other Shaffer devices on display will include rotary releasing spears, for removing casing or pipe, setting liners, made in different types for use with either right-hand or left-hand tools; expanding pin taps, designed for left-handing or backing-off strings of drillpipe which have been stuck in the hole, with the tooljoint box or the coupling up; improved packers, for controlling the release of gas from the sand, and aiding in the economical production of oil by this method; water-test packers, made for long, hard service; kelly cocks, placed above the kelly to protect the rotary hose and provide positive control if the well blows in through the drillpipe; polished-rod adjusters, making it possible for one man to respace rods on troublesome pumping wells, without having to stop the pump.

Tom Sharp, Inc.

Houston, Tex.

Booths 600, 601

Sivyer Steel Casting Co.

Milwaukee, Wis.

M. N. Dannenbaum Co. exhibit

Booths 516, 518, 520, 621

SKF Industries, Inc.

Philadelphia, Pa.

Spaces 1423 1425 outside

In attendance

R. H. DeMOTT — G. PALMBREN
H. L. GADDIS — A. H. DIXON
D. R. CRULL — B. F. COOMBS
R. W. CARROLL — N. MILLER
W. F. WEIDNER

SKF Industries, Inc., Philadelphia, Pa., will exhibit a complete line of ball and roller bearings and transmission appliances.

E. M. Smith Co.

Los Angeles, Calif.

Booth 756

In attendance

L. W. STAHL — G. W. WALTON
WALTER G. SMITH — PAUL KELTING

The E. M. Smith Co. will have on exhibition: Grizzly rotary brake-blocks, Grizzly rotary brake-block exchange plan, Grizzly full-molded brake-lining, Grizzly powerflex rotary hose, Grizzly Red Line Cub rotary hose, Grizzly Cub rotary hose, Grizzly drill pipe-protectors, Grizzly Giant drill pipe-protectors and Grizzly belting.

Howard Smith Co.

Houston, Tex.

Spaces 1205, 1207 outside

In attendance

P. F. MATLOCK — E. E. DAVIDSON
EDWARD BURNS — H. D. WILSON
COLLINS MATLOCK — A. R. MOONEY
C. W. WOOD — W. B. ROBINSON

The exhibit of the Howard Smith Co. will show its various types of Stancliff well screen with the different kinds of wrapping wire used, and will demonstrate the flow capacity of Stancliff screen, and the design and construction which make this flow capacity possible.

Nowery J. Smith Supply Co.

Houston, Tex.

Booth 216

In attendance

NOWERY J. SMITH — FRED G. LOVE
M. C. MORRIS — R. E. WELCH

The Nowery J. Smith Supply Co. will have the following equipment on display:

Columbian A.P.I. bolted steel tank of copper-nickel steel, galvanized through and through, showing sectional view with recessed galvanized nuts and washers. Galvanized steel stairway and walkway, and galvanized flumes.

Derrick, manufactured by the Nowery J. Smith Supply Co. and erected on a Nowery J. Smith substructure, with steel grillage. Derrick with regular legs and extended legs.

Oil and gas separators manufactured by Nowery J. Smith Supply Co. Five types in both low and high pressures, with automatic control equipment and standard lever controls.

A. O. Smith Corp.

Booths 740, 742

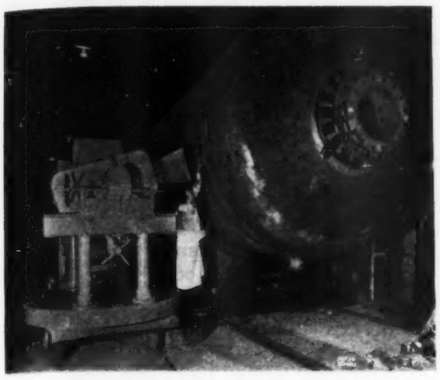
In attendance

C. C. JOYS, JR. — B. F. BART
HENRY BOURNE — CURT MEYER
AL BUTTS — J. DILOT

The exhibit of the A. O. Smith Corp. Milwaukee, Wis., will be on the order of a diorama. Space will not permit inclusion of any of the company's products, but it will have interesting test speciments and small samples. It will have also translite photographs of interesting views in the plant.

The diorama includes a model ship, which will be a miniature replica of the boats, carrying large oil-cracking stills to foreign lands. In the diorama will be also a scale model train loaded with various products including line pipe, high-yield casing, cracking-stills and

towers. The theme of exhibit will be "Safety in the oil industry," symbolized by an operating beacon. The



company believes that the message conveyed by the exhibit will be instructive as well as interesting.

The Sonner Burner Co.

Winfield, Kans.

Spaces 1235, 1237 outside

In attendance

P. J. SONNER — R. L. McCALL
H. P. McCULLOUGH

The Sooner Burner Co. will display two types of the Sonner air-cooled burners which are said to save money by developing a higher overload, and higher efficiency; by using less gas and always supplying plenty of steam on low gas pressure with no injury to the boiler.

The deep-slot construction of the air-cooled burner-head permits the lowest possible turndown without danger of flashback, and the unusually large cooling

surface in the burner-head prevents the deep slot from over-heating. The units are completely automatic with respect to air control and where used with a steam-actuated boiler-fuel governor require little or no attention.

The burner is engineered for oil-field service, built to stand abuse and yet is sensitive to changing load conditions. It requires only a few minutes to install the burner as it is a simple matter to slide the chassis under the boiler, raise to the proper height, connect the gas line, and put the burner-heads on the tubes.

Southern Engine & Pump Co.

Houston, Tex.

Booths 102, 200, 201

In attendance

C. A. LEAVENS — D. N. WOMMACK
W. G. PRICE — H. H. McGILVRAY
RICHARD KROPP

The Southern Engine & Pump Co., which has been in business 29 years serving the oil companies of Texas, represents the Hercules Motors Corp., Enterprise Engine Corp., Goulds Pumps, Inc., Pomona Pump Co., Viking Pump Co., and Northern Pump Co. and the equipment of these companies will be exhibited.

In addition to the foregoing equipment, the Southern Engine & Pump Co. builds up a line of Southern pumping units and Southern lighting plants. The Southern pumping units consist of either rotary, piston or centrifugal pumps direct-connected to either electric motors, gas or gasoline engines and diesel engines, and are built for every service in connection with the oil industry. The Southern lighting plants are built up in units from 1 to 25 k.w., many of which are of the weatherproof type.

Spencer Lens Co.

Buffalo, N. Y.

Booths 344, 346

Spang, Chalfant & Co., Inc.

Pittsburgh, Pa.

Booths 144, 146, 245, 247

In attendance

L. L. BRUNDRED — H. G. TEXTER
A. S. WEAVER — C. C. BRUSH
R. M. BURK — DAVE NEELY
R. M. SYLVIS

Spang, Chalfant & Co., Inc., will display samples and models of extreme line casing and shrink-thread drillpipe and tooljoints, together with a short movie-picture projection on a screen showing the manufacture of these two products.

Sperry-Sun Well Surveying Co.

Philadelphia, Pa.

Booths 544, 546

In attendance

G. L. KOTHNY — R. S. HYER
M. T. HIGGS — H. L. BERRY

The Sperry-Sun Well Surveying Co. will show the SYFO clinograph, the H-K inclinometer, the H-K directional magnetic clinograph and the Surwel gyroscopic clinograph. It will also have on display several samples of cores oriented by the company's new polarization method.

Standard Brass & Manufacturing Co.

Port Arthur, Tex.

Booths 634, 636

Standard Brake Lining Co.

Houston Oil Field Material Co. exhibit

Booths 150, 152, 154, 156, 158, 160, 251, 253, 255, 257, 259, 261

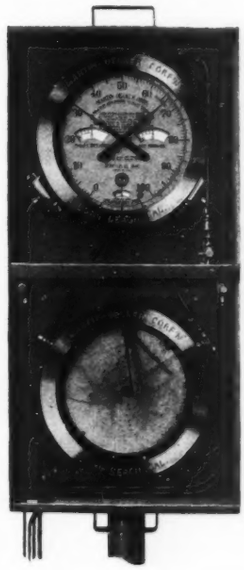
The Standard Brake Lining Co., Houston, will have a miniature loom weaving oil-well brake-lining on display. This exhibit is intended to show the intricate special weaving machinery used in manufacturing W-K-M brand and Standco brands of oil-well brake-

At the

OIL SHOW...

THE CLIPPER

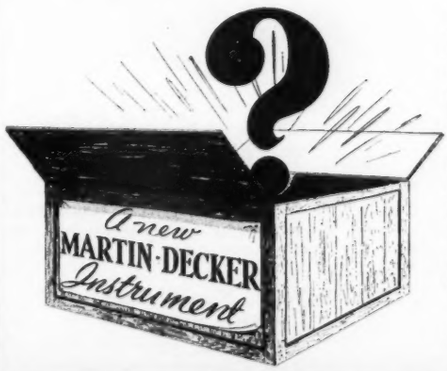
. . the portable weight indicator that gives complete availability all over the lease. It reads pounds or points for any string up with all standard size lines, and weighs only 47 pounds complete!



THE QUINTUPLEX

. . the complete drilling control instrument for today's scientific drilling operations. It groups control of all the important drilling functions right before the driller's eye, and keeps a 24 hour written record of drilling progress by charting changes in weight, pump pressure and torque the instant they occur.

AND THE . . . . ?



An outstanding new product developed by Martin-Decker will be shown for the first time at the Oil Show. It is another definite contribution to modern drilling control methods, so be sure to see it!

DO YOU KNOW?

The oil industry spends over twelve million dollars every year in laboratory research work!

See these famous Martin-Decker products at booths number 130 and 231.

THE WEIGHT INDICATOR
MARTIN-DECKER CORPORATION
LONG BEACH CALIFORNIA
San Joaquin Valley: A. F. McQUISTON, Bakersfield, California
Mid-Continent Distributor: REED ROLLER BIT COMPANY, Houston, Texas

lining. This is believed to be the first time that a brake lining loom will have been operated in the Mid-Continent or Gulf Coast states.

The Standco Bolt Co., Houston, an affiliated company, will display its line of heat-treated alloy steel oil-field bolts in the same section.

L. S. Starrett Co.

Athol, Mass.

Booth 437

In attendance

W. J. CLARK

A full line of precision tools, steel tapes, dial indicators and hacksaw-blades will be shown by the L. S. Starrett Co.

St. Louis Cordage Mills

St. Louis, Mo.

Space 1217 outside

In attendance

HAROLD V. PATE R. S. NORRIS

The background of the St. Louis Cordage Mills exhibit will be made of Manila fiber, grown in the Philippines. There will be a display not only of oil-field cordage, but of rope for marine and other uses. The center of attraction is expected to be an enlarged photograph of a man handling a catline over a cathead.

Strong, Carlisle & Hammond Co.

Cleveland, Ohio

Booths 344, 346

The Strong, Carlisle & Hammond Co. will show both open and inverted bucket steam traps, as well as pressure regulating valves. Both the open and inverted

bucket traps are fitted with Anum Metl valves and seats, guaranteed leakproof for one year. The inverted bucket trap has the patented antibalancing device to prevent dribbling, and is also fitted with stainless buckets. The company also is showing forged-steel traps for higher pressures and temperatures.

Sullivan Machinery Co.

Chicago, Ill.

Spaces 1016, 1017, 1021 outside

In attendance

(Pumpheads)

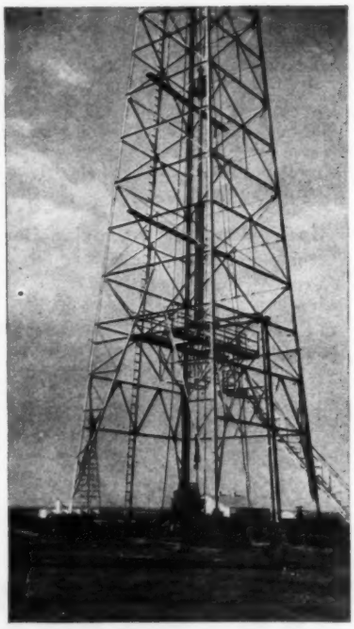
W. G. CORBY P. D. CORNELIUS
H. H. HOLLINSHEAD J. F. KENDRICK
W. H. TAFT C. L. VAN DA GRIFF
W. H. WINEMAN

(Drills)

J. W. HADDOCK H. C. JOHANSEN
CURTIS JOHNSON W. G. KLIPPEL
WALTER KREVIS J. B. MARTIN
J. A. NOYES J. E. M. SCHULTZ
P. G. SHARP H. H. VANDERZEE
EUGENE WHINNEN T. M. BLACKWOOD

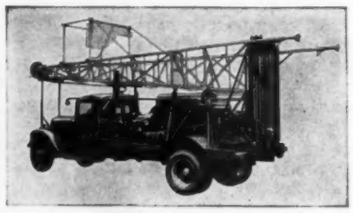
The latest type 15-foot stroke pumphead mounted in a 136-foot derrick will be exhibited by the Sullivan Machinery Co., and operated to simulate actual pumping conditions. Power will be supplied by a new semi-portable gas-engine-driven compressor.

Visitors will be able to study the distinctive characteristics of the Sullivan pumphead: The three-fold sucker-rod protection, consisting of the long, straight pull, polished-rod stroke, the giant shock-absorber and the definite limit on the strength of the up-stroke pull; the



manual operation of the head, to jar loose a stuck plunger; the ease with which the pumping speed can be changed; the fast up-stroke with slow down-stroke, or the slow up-stroke with fast down-stroke; the adequate lifting power, regardless of speed; the freedom from counterbalancing problems; the ease with which wells equipped with Sullivan pumpheads can be weighed and tested; the simplicity of an installation. The pumphead to be used in this demonstration has been designed to operate sucker-rods up to depths of 9,000 feet. Eight sizes are available, covering all well-pumping conditions.

Motorized drills for core-holes, seismograph shot holes, shallow production and deep-structure drilling will be exhibited. The drill exhibit, each machine prepared for mechanical demonstration, will consist of four complete units—three truck-mounted and one on 12-wheel trailer. The machines will be: Sullivan No. 36 drill, a light seismograph shot hole machine-truck mounted; Sullivan No. 37 drill, a heavy-duty seismograph and shallow-structure testing-drill, truck-mounted; Sullivan No. 38 drill, a high-speed structure-testing



unit, truck-mounted; Sullivan No. 51 drill, for shallow production, for repressuring and for very deep structure drilling, 12-wheel-trailer mounted.

In addition to the drills and pumphead exhibits, the company will show one of the latest two-stage portable compressors and pneumatic rock-drills, spaders, concrete-breakers and detachable bits.

C. J. Tagliabue Manufacturing Co.

Brooklyn, N. Y.

Booths 344, 346

Taylor Forge & Pipe Works

Chicago, Ill.

Booths 934, 936, 938

In attendance

PAUL BUSH

Taylor Forge & Pipe Works will show Weldells and the complete line of seamless-steel welding fittings. Weldells will be shown not only as they appear when furnished to the user, but also in section. The sectional views will bring out the several construction features which are of engineering value both from an installation and a service standpoint. A specially constructed display device will present the demonstration in an interesting manner. Taylor forged-steel flanges, seamless-steel welding necks, and spiral welded pipe will be on exhibition supplemented with large photographic views.

By means of a unique method of display the visitor will be shown how various Taylor forge products appear in actual refinery installations, indicating the completeness and diversity of the Taylor forge line. By means of two pipe assemblies cut in sections, visitors will be able to make direct comparisons between the interior of a Weldelled pipe line and a line mechanically joined.

Taylor Instrument Co.

Rochester, N. Y.

Industrial-Scientific Supply Co. exhibit

Booth 249

Technical Oil Tool Corp., Ltd.

Houston Oil Field Material exhibit

Booths 150, 152, 154, 156, 158, 160, 251, 253, 255, 257, 259, 261

In attendance

J. B. WOOD J. W. CULBERTSON
E. G. McCONNELL J. L. LINDSEY
C. W. EICHBAUM H. H. PETERS

The Technical Oil Tool Corp. Ltd., Los Angeles, will have a complete display of Totco drift recorders showing steps in the process of manufacture and various types of container bodies for different methods of operation. Testing machines to show the accuracy of Totco recordations will also be shown.

Templeton, Kenly & Co.

Philadelphia, Pa.

Booths 439-441

In attendance

CHARLES NEHER J. B. H. HENDERSON
J. B. TEMPLETON

Templeton, Kenly & Co., Chicago, will exhibit their complete line of Simplex oil field jacks.

The No. 436 Simplex double-chain pullrod jack has a powerful 7-ton geared mechanism which is said to make it possible to pick up the deepest wells easily. This jack is used in conjunction with central powers or back-crank units, eliminating kinked rods. It is easily carried, attached and operated by one man. The equalized pull on the two chains brings the rods together in a straight line. The slack can be held while the jack rack-bar is extended for additional travel. The positive friction holding slip and chain wedges eliminate such hazards as kickbacks, bruised knees, etc.

No. 2029, capacity 20 tons.

A smaller pullrod jack of three tons capacity for shallower wells will be introduced. The mechanism will not be geared and it will be much lighter than No. 436.

Other Simplex jacks include the No. 310 emergency jack, which pivots on its base; riggers' jacks built in 5-, 7½-, 10-, 15- and 20-ton capacities; geared jacks built with right- and left-hand toe-lifts; journal, cable-reel, pole, ball-bearing screw jacks, and push-and-pull jacks that also spread, clamp, lift and pull wheels and gears.

Tennessee Coal, Iron & Railroad Co.

Birmingham, Ala.

United States Steel Corp. exhibit

Booths 264, 364, 365, 366, 465

The Texacone Co.

Booths 529, 531

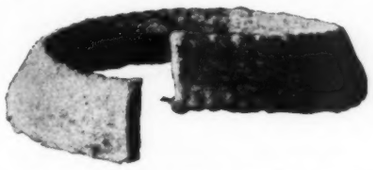
In attendance

HAL T. WHEELER D. B. McCONNELL
G. L. BANNON FRANK CROW

The Texacone Co., Dallas, Tex., will feature its principal article of manufacture, the accordian packing ring, made in many forms. These rings, one of which is

shown in the accompanying illustration, are molded and compressed for extremely high pressures and temperatures for all liquids, gases and vapors and for all chemical conditions.

The accordion ring in spiral form will be exhibited for the first time at this show. The special feature is that any width of the spiral may be applied to both



piston-rods and pistons of wide diameter ranges, thus eliminating the former requirement that accurate rod and box dimensions be furnished the manufacturer before shipment of the goods. Every mechanic can now make his own compressed rings and fit them on the job. A semiuniversal treatment given the several kinds of the spiral insures its application to many packing conditions and reduces the stock of material to be kept on hand.

Texacone compressor metallic packings and engine fire-checks will also be on display.

The Texas Co.

Houston, Tex.

Booth 8

In attendance

H. D. KOHLMAN, JR. O. W. HEYE

The Texas Co. will display an interesting grouping of petroleum products in attractive glass containers, against a central shaft, done in the modern manner, rising to a commanding height over surrounding exhibits. This shaft will furnish the central motif for a colorful base executed in shades of black and gold, with indirect lighting displaying to best advantage the grouping of carefully color blended oils. At the top of this shaft, commanding all four sides of approach, will be located bright red stars, indirectly lighted, forming the Texaco trade-mark, capped by free standing cut-out letters, outlining the word "Texaco." At advantageous points colored spotlights will be focused.

Texas Steel Co.

Fort Worth, Tex.

Booths 412, 414. Spaces 1008, 1009 outside

In attendance

A. J. ARMSTRONG	C. S. CAMPBELL
J. W. EMERY	R. A. CLAMPITT
GEO. W. ARMSTRONG, JR	W. J. SMITH
C. H. BALDWIN	E. A. SCHAMBS, JR.
FLOYD L. SWINDELL	C. G. COOPER
R. C. ARMSTRONG	R. H. COLEMAN
PHILIP EDWARDS	P. J. DONNELLY
G. I. CALVERT	H. GLASGOW
J. T. UMBENHOUR	W. A. DOREMUS

The Texas Steel Co. inside exhibit will include one of the new line of oil-field pumping units, sucker-rod

specimens to illustrate mechanical processes and metal structure, and miscellaneous items of smaller equipment. The outside space will be devoted to a multiple-well hookup in operation, showing two backside assemblies pulling various sized Texasteel underpull pumping-jacks to simulate actual lease conditions.

Texas Electric Steel Casting Co.

Booths 436, 537

The Texas Electric Steel Casting Co., Houston, Tex., will not exhibit any of its products, which consist of rough steel castings, but it has made arrangements with the Postal Telegraph Co. to install in its booth a teletype machine operated by one of its own ladies so that messages can be received and sent direct from the auditorium of the show. It also has made arrangements with the Bell Telephone Co. to install two telephones on which incoming calls only can be received and two booths on which toll calls can be sent out. It will have at least two young ladies who will deliver messages and page for telephone calls throughout the building. To make this service complete the company will have several thousand postcards without any advertising, but with an attractive picture on the back for those who want to send a short note home. There will be a postal box conveniently located in the booth and the company will mail these cards. The company will supply free drinking water which will be iced and it will have comfortable seats for those waiting for calls.

In this manner the company hopes to express to the oil industry its thanks for confidence shown in its products.

Texas Iron Works, Inc.

Houston, Tex.

Booths 244, 246, 248, 250, 252, 345, 347, 349, 351, 353

In attendance

J. E. PEARCE	L. M. PEARCE
W. L. PEARCE	O. M. PEARCE
CHAS. E. ARTZ	WALTER CHURCH
EDDIE GOODWIN	

The Texas Iron Works, Inc., will show practically its entire line of oil-field products. Among the exhibits will be bits; packers and setting tools; heaving-shale drilling assemblies; slips; compounding, back-pressure

KEEP THESE PROFIT ROBBERS AWAY!

DON'T let gum, acid corrosion, and anti-knock depreciation steal your gasoline profits. It's easy and economical to prevent profit loss with Du Pont Gasoline Antioxidants.

It actually costs *less* to stabilize cracked gasoline by this modern, efficient method. Du Pont Antioxidants prevent gum formation. They minimize the need for redistillation—often eliminate it. They reduce color loss and help maintain anti-knock quality. And they cut maintenance costs because it is no longer necessary to expose your valuable equipment to the corrosive action of acid.

It doesn't take much . . . and it doesn't cost much . . . to protect all the gasoline in your tank farm. Increased profits from higher yields are reported by users of Du Pont Gasoline Antioxidants. For further information, write to E. I. du Pont de Nemours & Co., Inc., Organic Chemicals Dept., Wilmington, Delaware.

DU PONT
REG. U. S. PAT. OFF.

GASOLINE ANTIOXIDANTS

and kelly joint safety valves; casing and tubing-heads; tooljoint-breakers; and other oil-field equipment.

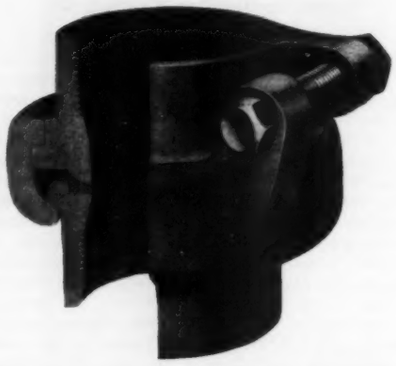
Texas Rubber & Specialty Corp.
Houston, Tex.
Booths 301, 303

Thornhill-Craver Co.
Houston, Tex.
Booths 447, 449
In attendance

C. W. THORNHILL — H. E. THORNHILL
KENNETH CRAVER — GEORGE COLLON
T. W. WALKER — R. S. WARREN
LESTER E. PECK — H. L. DUNCAN
F. L. LEDLOW

The Thornhill-Craver Co. will exhibit Unibolt, a one-bolt coupling, including the forged-steel type, 6000-pound test; the malleable Unibolt for medium pressures, and the "Big Inch" Unibolt, 2000-pound test, available with blanking plug for compounding pumps or for deadending lines.

The advantages offered by the Unibolt principle,



such as quick setting up and tearing down of drilling rigs, pump manifolds, steam lines, tank battery hook-ups, will be shown. Economy, due to replaceable and interchangeable parts, will be emphasized.

The application of the Unibolt principle to other uses than the coupling method will be brought out in the display.

Thew Shovel Co.
Lorain, Ohio
Browning-Ferris Machinery Co. exhibit
Spaces 1024, 1025, 1026, 1027 outside

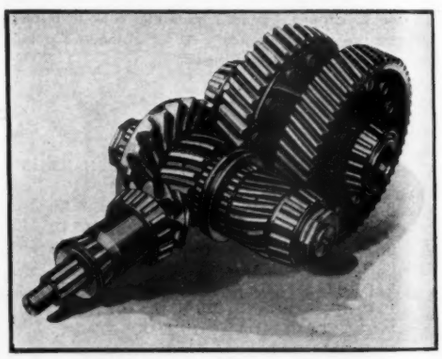
The Timken Roller Bearing Co.
Canton, Ohio
Booths 464, 466
In attendance

W. B. MOORE — S. M. WECKSTEIN
JOHN BORLAND — H. W. TRUMP
MARTIN FLEISCHMANN — D. T. MARVEL

Against an illuminated background showing typical oil-field equipment the Timken Roller Bearing Co. will display a representative line of tapered roller bearings such as are used in oil-field engines, pumps, powers, hoists and swivels. Both single-end and double-row bearings will be shown, together with the special flat type thrust bearing which is used in heavy swivel construction.

The Timken-Detroit Axle Co.
Detroit, Mich.
Transportation Equipment Co. exhibit
Space 1013 outside

The Timken-Detroit Axle Co. will show its line of Weld-Bilt tubular trailer axles in five basic capacities. Heavy tubular sections and large-diameter spindles are used in these axles to attain the wear rigidity of axle-beams, which is of prime importance with trailer axles. Maximum tire life and the free rolling of trailers are



insured because tires are kept in proper alignment both in vertical and horizontal planes as long as the axles are used within their rated capacity. Wheel bearings are of the modern short-roll mirror-finish. Timken tapered roller-bearing type with the load-line of the tires so located with respect to the inner and outer bearings that the percentage of load carried by each bearing is directly in proportion to its capacity.

Timken Superservice axles are specially designed for off-road service. They open up new fields of usefulness for Ford and Chevrolet trucks. They are for excavating, road-building, lumbering and engineering projects—wherever the going is tough and traction uncertain.

Four features formerly available in high-priced heavy-duty vehicles only are incorporated in this axle—a Wisconsin double-reduction drive which accomplishes the final axle gear reduction in two steps; the Timken high-traction differential with differential gear-teeth so designed that the power is automatically divided between the wheels in proportion to their traction; Timken Superservice torsion flow axle-shafts of heat-treated special alloy steel built for the increased torque of a slower ratio; Timken Superservice housing of pressed steel, banjo type, reinforced inside and outside for greatest strength.

Timken two-speed ability (see illustration) is obtained by the addition to the conventional Timken-Wisconsin double-reduction drive of a second spur-pinion on the cross-shaft, and a second master gear on the differential. The desired axle ratio is obtained by means

42 YEARS EXPERIENCE

SERVICE

Much of the growth of this Bank has been due to an interest in the Oil Business that has closely paralleled the growth of the Industry.

When the question of Oil Financing presents itself we invite you to avail yourself of the Experience, Knowledge and Ability of 42 Years Service of the First National Bank and Trust Company.

DIRECTORS
R. F. BARNETT, Vice President
J. P. BYRD, JR., Vice President
M. M. DOAN, Oil Investments
F. L. DUNN, Executive Vice President
A. L. FARMER, Real Estate
H. N. GREIS, Oil Producer
JOHN D. MAYO, Mayo's, Incorporated
R. OTIS McCLINTOCK, President
F. B. PARRIOTT, Oil Producer
W. G. SKELLY, President, Skelly Oil Company
ELMO THOMPSON, Vice President

THE FIRST NATIONAL BANK AND TRUST COMPANY OF TULSA

1895 — We Bank on OIL — 1937

of a Shift-Lok clutch-collar manually operated from the driver's cab, which locks either floating spur-pinion to the cross-shaft. A shift from one ratio to the other is accomplished with only a brief depression of the clutch and no reduction in vehicle speed.

The new Timken six-wheel conversion unit adds a third load-carrying axle to the conventional four-wheel truck. With a minimum extension in overall vehicle length, this unit permits a substantial increase in payload capacity, without throwing this additional weight on the original axles.

Edgar Tobin Aerial Surveys

San Antonio, Tex.

Booths 159, 161

In attendance

EDGAR TOBIN JAMES ATKINSON
GEORGE RICE

To illustrate the aid which aerial photography has contributed in the process of finding and producing oil, Edgar Tobin Aerial Surveys will display a comprehensive selection of maps the company has produced during its 10 years of specializing. During this period it has completed 200,000 square miles of aerial photographic maps, 125,000 square miles of geodetically controlled regional maps, and 60,000 square miles of precise ownership maps. From this vast library, built up in the service of the country's leading oil producing companies, this exhibit aims to show the nature of aerial photographic mapping and how it attains the high degree of accuracy required. Since mapping may properly be regarded as indispensable oil-finding and producing equipment, the exhibit should prove of interest and benefit to visitors who desire acquaintance with modern oil-mapping methods.

Trackson Co.

Milwaukee, Wis.

Browning-Ferris Machinery Co. exhibit
Spaces 1024, 1025, 1026, 1027 outside

In attendance

L. E. DAUER I. W. KUNERT

The Trackson Co. will exhibit its Trackson pipelayers, for use in the building of pipe lines.

Transportation Equipment Co.

Houston, Tex.

Space 1013 outside

In attendance

J. L. PARKER GEORGE AITKEN
H. L. KLINE W. J. VOISEN
C. V. BREWER

The Transportation Equipment Co. will exhibit Marmon-Herrington all-wheel-drive trucks, Timken two-speed axles and trailer axles, Bendix power brakes, Columbian Steel Tank Co.'s products, DeLuxe oil-filters, Gallon All-Steel dump bodies, United States Electrical tools, Joyce hydraulic and mechanical jacks, Steelcote penetrating metallic paints, truck flares and miscellaneous truck equipment.

Tretolite Corp., Ltd.

Dallas, Tex.

Booth 214

In attendance

J. S. LEHMANN K. R. FARR
F. H. PENN E. H. DAYVAULT

The exhibit of the Tretolite Corp., Ltd., will consist of some drums of Tretolite, and there will be a reception room for visitors.

Trinity Portland Cement Co.

Booths 2,3

In attendance

JACK BARNES HARRY J. SESSUMS
L. C. DONEY

The exhibit of the Trinity Portland Cement Co., Dallas, Tex., will show the territory served as well as the following Trinity products: Trinity standard Portland cement, Trinity high early strength Portland cement, Trinity Inferno (high-temperature, sulfate-resisting cement), Trinity fibre cement and Trinity-Mix masonry cement. The company will have also two pieces of apparatus which serve to emphasize the close control exercised in making its products.

The Christian Becker No. 15, Chainomatic balance, is of the latest type. It is equipped with a notched beam with 10 intervals, each representing 100 mg., and a special rider and rider-carrier, which together with the Chainomatic feature eliminates the necessity of any fractional weights below a denomination of 1 gram. This balance has a capacity of 200 g. and a sensitivity of one-twentieth mg. at full load or almost one two-millionth of a pound. This balance is used in analytical work in the laboratory and with it the company can determine with minute precision the various elements which go to make up the finished cement.

The second instrument is the comparator, developed by the Portland Cement Association for the measurement of the expansion of 1 by 11 by 11¼-inch cement specimens. The lengths of these specimens are taken with the comparator and then recorded. After that, the specimens are steamed for several hours at a pressure of 300 pounds per square inch at a temperature of 420° F. These specimens are then allowed to cool and their measurements again taken. The difference between this latter measurement and the one first taken represents the expansion of the cement. The comparator is accurate to one ten-thousandth of an inch.

Tube-Turns, Inc.

Louisville, Ky.

Maintenance Engineering Corp. exhibit
Booths 608, 610, 612, 709, 711, 713

In attendance

R. E. FRITSCH G. M. PEMBROKE

Tube-Turns, Inc., will have on display its full line of tube-turns and other fittings for pipe welding work.

See Our Booths 646-648-650 at Oil-World Exposition, Houston, Texas, October 11-16 inclusive

And This RIDGID Thin Tool-Steel Blade Wheel is the Reason

If you want a new experience that will show you how quickly, easily and cleanly pipe can be cut, try a RIDGID Cutter.

You'll find the patented RIDGID Cutter wheel a real improvement. Coined out of tool steel sheet, hammered, heat-treated and cast into a steel-bearing hub, it rolls smartly through any pipe, practically without burr—many more cuts per wheel.

At your Supply Store

Save 75% of Your Pipe Wrench Repairs

The RIDGID Wrench housing is unconditionally guaranteed not to break or warp—so goodby to 75% of your wrench repairs.

THE RIDGE TOOL CO., ELYRIA, OHIO

RIDGID PIPE TOOLS

OCECO Flame Arrestors
Can you afford less positive PROTECTION?

U. S. Pat. No. 1,735,261

• Oceco Flame Arrestors are the recognized standard, world-wide throughout the entire industry. They are being used on more than 250,000,000 barrels of tankage—yet, even when located in the middle of a blazing tank farm—

NO TIGHT TANK EQUIPPED WITH AN OCECO FLAME ARRESTOR HAS EVER BEEN LOST BY FIRE

Oceco Flame Arrestors are furnished as single units or complete with an Oceco vent valve. Sizes for any tank requirement. Complete details and a fully descriptive catalog will be sent on request.

Specify
OCECO FITTINGS
your tanks deserve the best

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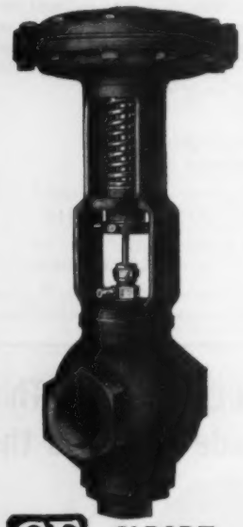
Write for descriptive literature



CF V-PORT Motor Valve

With both Flow-Control and Pressure-Control Regulators *this valve is* APPROVED

THE V-Port gradual-opening valve here shown is thoroughly dependable with flow controllers and instrument-type auxiliary-controlled pressure regulators and with many other forms of refinery equipment. Has many applications also in other industries. Made for either direct action (closed by diaphragm pressure) or indirect action (opened by diaphragm pressure). Sizes 1/2 inch up, all with ample diaphragm area to give positive unfailing response.

THE CHAPLIN-FULTON MANUFACTURING CO.
28-40 Penn Avenue Pittsburgh, Pa.

RENEW your subscription NOW!

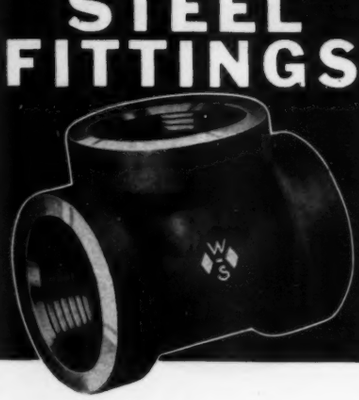
LUDLOW VALVES STAND UP

Valves must be strong and dependable to withstand the exacting demands of drilling, pipe line and refining operations.

All Ludlow valves are built to last. The fine materials used in their construction—and the original Ludlow principle of wedge closure means years of economical, rugged service. Write for complete catalog.

THE LUDLOW VALVE MFG. CO.
TROY, NEW YORK

WATSON-STILLMAN **W-S FORGED STEEL FITTINGS**



For complete satisfactory service —on pipe lines carrying oil or gas under high pressures and high temperatures—use W-S Forged Steel Fittings.

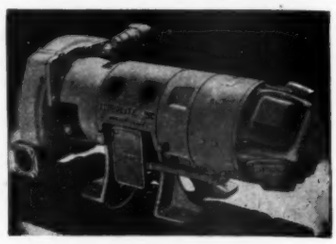
These easily applied, rugged fittings can be depended on for better, longer service under the most severe operating conditions.

THE WATSON-STILLMAN CO.
ROSELLE, NEW JERSEY

Turbolite, Inc.

Booths 408, 410, 509, 511

Turbolite, Inc., Houston, will exhibit its turbo-generators, bug-fans and mechanical drive steam turbines.



Type MG turbo-generators are designed to meet the demand for a simple, dependable steam-driven electric plant suitable for both lighting and power purposes and capable of continuous operation over long periods with a minimum of attention. The complete assembly consists of center casting with feet, to which the turbine and generator are bolted, one on either end. Both turbine and generator are complete units in themselves, the turbine driving the generator through a pin-and-bushing type flexible coupling. Either unit may be removed from the center casting without disturbing the other by taking out four bolts. This feature facilitates repairs or replacements when required. Accurate alignment and smooth operation are insured by turned rabbet fits between bearing brackets and center casting. Due to the turbine and the generator being separated, there is little possibility of steam or condensation coming in contact with electrical parts.

The Lacy bug-fans have been developed especially for use on and around drilling rigs operating in insect-infested locations. Both duplex and single types are supplied in two sizes and with three different types of drive, namely, steam turbine, electric motor or gasoline engine, permitting easy selection of a fan for any particular requirement. On the duplex-type fans, each fan is set at an angle which insures the widest possible spread of breeze, making adjustments unnecessary.

Turco Products, Inc.

Los Angeles, Calif.

Space 1209 outside

In attendance

VACHEL O. POOLE RAY SANDERS

The exhibit of Turco Products, Inc., will consist of a display and demonstration of new developments in cleaning materials especially processed to perform the heavy cleaning tasks encountered on oil-field, refinery, salvage and other equipment in the various branches of the oil industry.

There will be seen, among other things, a new compound, Turco Mulsine, capable of removing heavy grease coatings from equipment by a simple cold-spray process. Another featured compound, Turco Penetrol, will be demonstrated. This material, by mere cold immersion removes obdurate grime from equipment parts. Even carbon yields to its penetrating action, yet it does not affect the metal parts being cleaned.

Materials will be exhibited for removing scale from condensers, engine-jackets, coolers and similar equipment. These materials act only on the scale, leaving the metal parts unaffected. This eliminates the danger of "eating away" incurred by the practice of using raw, uninhibited acids.

Other efficient cleaners will be shown and their methods of use demonstrated.

Twin Disc Clutch Co.

Racine, Wis.

Booths 432, 434

In attendance

G. M. GUILBERT J. B. JENKINS

The Twin Disc Clutch Co. will exhibit four different sizes of power takeoff units especially designed for oil-field pumping service and heavy-duty work, such as mudpumps, etc. It will exhibit also its model E clutches which are used in the oil industry in rotary drawworks and reverse clutches.

The company will show a stub shaft mounted clutch, used extensively on drilling engines in the oil fields. There will be a miscellaneous display of smaller clutches, used in auxiliary units, such as Wilson and portable rig units; also the company's standard power take-off

units largely used in the oil fields on collector pumps, etc.

Twin Seat Valve Co.

Racine, Wis.

W-K-M Co. exhibit

Booths 504, 506, 508, 510, 605, 607, 609, 611.

Space 1002 outside

Una Welding, Inc.

Cleveland, Ohio

Booths 1, 6

In attendance

W. B. BAKER JAMES TATE

Una Welding, Inc., will feature Una 3100 rod, a universal-type, all-position, shielded-arc rod, which has met with favor in the oil fields. For vertical and overhead welding it provides an improved arc which allows the operator to position the weld metal properly with

a minimum effort, thus making it easier to produce sound welds with no excessive spatter loss.

For flat welding the rod is said to give excellent penetration, and due to the visible crater and extreme arc stability, undercutting can easily be avoided. Una 3100 is fast, has deep penetration, easy slag removal, easily visible crater, extreme arc stability, clean sound weld metal, high physical properties, and the weld metal conforms to the specifications of the various Codes.

Union Gas System, Inc.

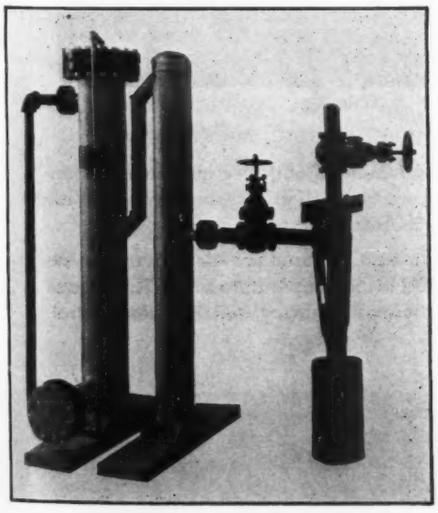
Independence, Kans.

Spaces 1340, 1439 outside

In attendance

PAUL R. JOHNSON VERNON F. PALMER
"GENE" BROWN "RODG" JOHNSON
GEORGE C. PRIESTLEY, JR.

The Union Gas System, Inc., will display the Union automatic gas separator, formerly made by McWhorter & Bennett, Coffeyville, Kans., who patented their first separator in 1923. McWhorter & Bennett are said to have installed approximately 600 separators for producers and pipe line companies in the Mid-Continent fields. Improvements were made from time to time,



and new patents issued, but the basic design was never materially altered.

The Union Gas System purchased the patents and rights on this separator and worked out certain changes. The same separator with inverted valve is built for a main-line automatic trap to replace siphon drips, which are usually manually operated and difficult to service in severe weather. The main-line trap may be used in connection with a few joints of condenser pipe, or an ordinary tank-drip. When so used, it will automatically and continuously remove the gasoline, oil and water which may accumulate at that point in the pipe lines.

Both the automatic well separators and the line traps employ a heavy copper float with an open top, permitting equalization of pressure to prevent collapse of the float if pressures change suddenly.

United American Bosch Corp.

Springfield, Mass.

Booths 155, 157

United States Gauge Co.

New York

Booths 234, 236

United States Heat Treating Co.

San Antonio, Tex.

Spaces 1128, 1130 outside

In attendance

VIRGINIA BURCHELL P. G. ROGERS
HARRY PENNINGTON, JR. JAMES RAY
A. W. FORRESTER A. J. JOHNS
HOWARD BOSWELL DOUGLAS BATTY
BRUCE SCRAFFORD C. E. ANDERSON
HARRY PENNINGTON, SR. RAY ALLEY

A full line of Pennington signaling core-barrels, plug center bits, drill-collars, hard- and soft-formation universal core-catchers, hard- and soft-formation core drilling-bits, with small sizes showing construction and manner of operation, will be shown by the United States Heat Treating Co.

Signaling, an exclusive feature of these core-barrels, consists of creating a rise or a fall in circulating pressure as an indication to the driller. In pumping the core-tube down through the drillpipe, when it arrives on the seat within the core drilling-bit, ready for coring a signal, an increase in pressure, indicates the barrel is correctly seated to receive the core, without delay.

When the core-tube is filled with core, pressure again lofts, signal that it is time to retrieve, regardless of measurements made for depth on the drill-collar.

Should too much weight be let down on the core drilling-bit, and "burn" the core, signal again arrives, when the bit may be lifted, the core cleared, and core-drilling is then resumed.

Signaling adds to rapidity in all the operations of core-drilling and assures absence of loss of core section.

One-foot, two-foot, or any core length short of maximum may be cut, and when the required length is within the core tube, signal so indicates.

This equipment is leased or sold as desired.

There will also be a motion picture, a two-minute reel each half-hour, showing core-drilling and core-recovery.

United States Rubber Products, Inc. and Petroleum Tire & Supply

Houston, Tex.

Spaces 1200, 1301 outside

United States Steel Corp. Subsidiaries

Pittsburgh, Pa.

Booths 264, 364, 365, 366, 465

A space 50 feet long has been reserved for the United States Steel Corp. Subsidiaries' exhibit. The following subsidiary companies will be represented:

American Steel & Wire Co.
Carnegie-Illinois Steel Corp.
Cyclone Fence Co.
Tennessee Coal, Iron & Railroad Co.
Universal Atlas Cement Co.

In the center of the display will be large diorama of an oil field. Traveling in front of this will be five model trucks. These little trucks will carry USS American Tiger brand cables and each time a truck appears in front of the diorama an inscription will flash on telling about USS American Tiger brand wire and the various samples which the trucks are carrying.

At each side of this central display will be two life-sized tigers, the familiar symbol of the American Steel & Wire Co. To add a jungle note, the tigers' heads will be in motion. At the left will be a large panel of factory protection fence made by the Cyclone Fence Co. this fence will be protecting a photomural showing the typical installations of Cyclone factory protection fence, and the proper installations in various oil-field locations.

At the right three types of cement will be displayed by models, photographs and samples. These cements are Uniflow, Lumnite and Atlas, all made by the Universal Atlas Cement Co. Several small models will be mechanically operated to show the uses and advantages of these three types of cements.

A small diorama will show USS roofing and siding products. By means of sample boards and dioramas new types of roofing will be shown and described.

Universal Engineering Co., Ltd.

Los Angeles, Calif.

Booths 358, 360

The Vapor Recovery Systems Co.

Spaces 1117, 1119 outside

In attendance

FRANK V. LONG H. C. NEWMAN

The Vapor Recovery Systems Co., Compton, Calif., will show a complete line of tank equipment and vapor-recovery devices, including particularly conservation vent valves and what is said by the company to be the only flame arrester listed by the Underwriters' Laboratories for installation in the enclosed area between vent valve and the tank. Both are of pure aluminum construction.

Swing line equipment and automatic tank-gauges for all purposes will also be exhibited with particular stress upon gauges for high-pressure vessels used in butane dewaxing, butane-propane manufacture and storage and polymerization.

Vernon Tool Co., Ltd.

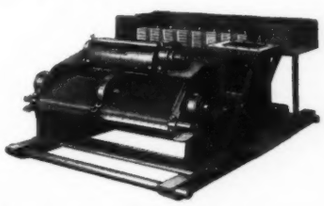
Los Angeles, Calif.

Booths 331, 333

In attendance

J. W. McNEELY

The Vernon Tool Co. will exhibit in conjunction with the McNeely Materials Co. of Houston, Mid-Conti-



nent and Gulf Coast distributors for Vernon. On display will be the new Model E McNeely vibrating mud-screen and a line of auxiliary driving equipment.

Victor Welding Equipment Co.

San Francisco, Calif.

Booths 735, 737, 739

Viking Pump Co.

Cedar Falls, Iowa

Booths 100, 102, 201

Henry Vogt Machine Co.

Booths 715, 717

In attendance

W. S. CANNON, JR. G. A. DAEUBLE, JR.

The Henry Vogt Machine Co., Louisville, Ky., will display a complete line of drop-forged steel valves, fittings and flanges. In addition to flanged and screwed-end valves of many sizes and types, gate valves with welding ends will be shown. Socket weld ells and tees, recently announced by the company, will also be exhibited, along with screw-end ells, tees, crosses and flanges, etc.

In the complete Vogt drop-forged steel line will be valves, fittings and flanges especially suited for the exacting requirements of the modern oil refinery. These products may be had forged from carbon or stainless steel, as desired, and they are especially designed for high-pressure and high-temperature service.

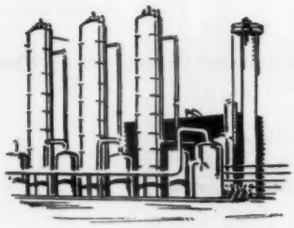
(Continued on Page 268)

Stabilog

REG. U.S. PAT. OFF.

control

RESULTS ARE GUARANTEED



COMPLETE PROCESS CONTROL, ENGINEERED TO EACH INSTALLATION

The Stabilog Potentiometer Controller has every essential for complete control: **1.** *Highly responsive*—**2.** *Wide throttling range*—**3.** *Automatic reset.*

It has one fundamental advantage—sensitivity of response is not related to the temperature scale. This means maximum sensitivity and accuracy, and the finest control.

Certified **FOXBORO**

REG. U.S. PAT. OFF.

"To me, Stabilog Control means smooth, trouble-free operation . . . IT 'CLICKS'"

Brief, terse and to-the-point are these few words of a typical Foxboro Stabilog Control user. He knows from results that this system of control is always alert and responsive. There are no "dead spots"—no "compass circle" records. Sluggishness, inertia, friction and lost motion are banished from Foxboro Stabilog Control. Every process change, no matter how small, is detected and corrected. Periods of unbalanced process operation are unknown.

Stabilog Control gives the closest possible control of temperature, pressure, flow and liquid level. Refineries of every type are demanding results which they can be absolutely sure of. And, with Stabilog Control, *we guarantee results!* Put your control problems up to Foxboro engineering . . . plus Stabilog Control. The Foxboro Company, 60 Neponset Avenue, Foxboro, Mass., U. S. A. Branch Offices in 25 Principal Cities.

SEE THE FOXBORO DISPLAY
AT THE
OIL WORLD EXPOSITION
HOUSTON, TEXAS, BOOTH 105
OCTOBER 11 TO 16

STABILOG CONTROL

Volcano Burner Co.

Houston, Tex.

Spaces 1334, 1336 outside

In attendance

ROY S. DODD J. H MITCHELL

The Volcano Burner Co. will show all types of all-steel, low-pressure gas burners it manufactures. Gulf State, Volcano, Bearcat and the new Superior.

The exhibit will feature the Superior, which will be on display for the first time. It is the company's latest development in a unitized burner for the new types of rotary drilling boilers with long fireboxes. It will be shown in two models, one equipped with the Volcano automatic draft control and one without draft control. The exhibit will feature the fact that the company manufactures only all-steel products.

Vortox Manufacturing Co.

Claremont, Calif.

Booth 656

In attendance

C. C. SOWERBY JAMES M. JUDY
K. R. BAUGHMAN

The Vortox Manufacturing Co. plans to exhibit only a few of its smaller air cleaners on corner shelves running from the ground level to the top of the booth. The rest of the booth will be taken up by a demonstrating unit operated by electric motor and blower.

Walworth Co.

New York

Booths 658, 660, 759, 761

In attendance

HOWARD COONLEY W. B. HOLTON, JR.
J. M. OLMSTEAD F. W. DUEMLER
F. H. MOREHEAD C. L. BRADBURY
W. M. COMBS C. G. FINKLE
E. L. CLARK H. C. NANNEN
H. G. LAMBERT

The Walworth Co. will have a specially constructed background on which it will show its line of valves, fittings, pipe and tools.

The new bronze valve, Figure 225P, which has a seat and disc of high-chrome, noncorrosive stainless steel, heat-treated to a minimum Brinell hardness of 500, will be featured. This valve is furnished in sizes from one-quarter to 2 inches.

The company will show also its mud-line valves, Figure 85 flow-line drilling gate valves, and its line of lubricated plug-valves. Walworth C.N.I. flanged pipe, Walco pipe-wrenches and Walworth genuine Stillson wrenches will be exhibited.

Leonard Ward Electric Co.

Mount Vernon, N. Y.

Brance-Krachy Co. exhibit

Spaces 1122, 1124, 1223, 1225 outside

Well Equipment Co., Inc.

Houston, Tex.

Spaces 1314, 1316, 1318 outside

In attendance

C. K. STILLWAGON C. H. LANE
S. H. SMITH

The Well Equipment Co., Inc., will show the following equipment:

Hamer plug-valves and Hamer Ez-Out liner-sleeves, distributed for the Hamer Oil Tool Co., Ltd., Long Beach, Calif.

Kibele tubing-catchers, swabs and boiler-feed pistons, distributed for the Kibele Manufacturing Co., Dallas, Tex.

Real Fire low-pressure gas burners, distributed for the Real Fire Burner Co., Tulsa, Okla.

Okadee boiler blow-off valves, distributed for the Okadee Co., Chicago.

Gulf steam line and engine hydrostatic lubricators, distributed for the Gulf Lubricator Co., Houston, Tex.

Justiss compounding valve, distributed for the Justiss Manufacturing Co., Henderson, Tex.

Thompson fusible plugs, steam-gauge protectors and stabilizers, distributed for the Boiler Equipment Supply Co., Oklahoma City, Okla.

The Well Equipment Co. manufactures the Weco wing union, valve speed handle, boiler gauge cock, stuffing-box, and oil-saver.

Westcott & Greis, Inc.

Tulsa, Okla.

Booths 728, 730

In attendance

J. H. SATTERWHITE H. W. WAHL
C. C. CLOVER R. A. MARSH
B. E. KEELING VAL LINK, JR.

Eight manufacturing concerns, representing a wide range of products for the oil and gas industry, will exhibit in the Westcott & Greis booths, as follows:

American Meter Co.

In attendance

A. F. BENSON

The American Meter Co., Erie Pa., will display the following equipment: Metric orifice meter, recording

and integrating; metric volume controller for the control of gases and liquid; metric long-distance air-actuated indicator and recorder for the transmission over a long distance of chart records; metric large and small iron-case positive meters for both field and city measurement of gas, and other instruments applicable to the correct measurement of gases and liquids.

The Bristol Co.

In attendance

A. A. BLACKMAN R. A. BARNES
MR. AULT

The Bristol Co., Waterbury, Conn., will display its new moisture-proof model 40 recording gauge for the proper recording of pressure of all descriptions; recording thermometer, fully compensated type, for recording accurately of temperatures in gas pipe lines; Metameter receiver, which shows the proper recording of pressures transmitted over a long distance; Pyromaster recorder controller, which shows the proper records of automatically controlled pressures and temperatures; strip-type potentiometer recorder, for the proper recording of temperatures, and model 22-M portable recording gauge for the accurate recording of pressures on a portable basis.

The Chaplin-Fulton Manufacturing Co.

The Chaplin-Fulton Manufacturing Co., Pittsburgh, Pa., will show its line of high- and low-pressure gas regulators.

Buffalo Meter Co.

The Buffalo Meter Co., Buffalo, N. Y., will exhibit samples of cold-water, disc-type displacement meters; displacement-type gasoline meters and its high- and low-pressure displacement-type oil meters.

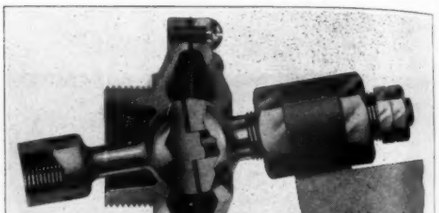
Davis Regulator Co.

In attendance

R. A. PETERSON

The Davis Regulator Co., Chicago, will exhibit liquid level controllers and control valves equipped with the patented packless head known as Davis diaphragm ball arm. The unit replaces the conventional ball-bearing rotary stem packing box.

The Davis diaphragm ball arm is a packless unit consisting of a diaphragm designed to withstand the chemical action and possible high temperature of the liquid with which it comes in contact, and a ball with an extended stem that rocks in a socket. The ball is in halves and is tightly secured to the diaphragm by a nut on the end of the protruding stem on which the



lever-bracket is mounted. There can be no leakage through it. Suitable for pressures up to 300 pounds and temperatures of 450° F. or less.

The Davis diaphragm motor valve and pressure regulator, as well as the Davis No. 330 gas back-pressure valve, will be included in the exhibit.

S. R. Dresser Manufacturing Co.

In attendance

H. F. BONCHER R. R. SHIDEL
CHARLES T. DAVIS

The S. R. Dresser Manufacturing Co., Bradford, Pa., will exhibit its line of style 65 fittings, pipe-line couplings, long-sleeve couplings, collar-clamps, band-clamps and split-sleeve repair-clamps.

Reliance Regulator Corp.

The Reliance Regulator Corp., Alhambra, Calif., will show the Reliance line of house service regulators, field regulators and regulators for both high- and low-pressure control. All of these regulators are for the proper control of gases.

Robinson Orifice Fitting Co.

In attendance

P. H. ROBINSON GORDON GREENE

The Robinson Orifice Fitting Co., Los Angeles, introduced orifice fittings to the industry in 1924. Improvements and finally complete redesign produced the modern type E fitting of today. The simplicity of operation, expert workmanship, and the finest of materials are features.

In the type E fitting the main operating mechanism is housed in the upper chamber and consists of a stainless-steel stationary screw and a follower-nut pivoted to the orifice plate carrier. This device raises and lowers the orifice plate carrier in position and assures positive centering of orifice plate in the line. A stainless-steel diaphragm sealing member forms a smooth flush bore from both the upstream and downstream face of the orifice plate. The orifice plate carrier is automatically lifted out of the side of fitting, making replacement of plates easy. It is never necessary to lift the carrier manually, as it is supported at all times.

Westcott Valve Co.

East St. Louis, Ill.

Booth 428

Continental Supply Co. exhibit

Western Block Co.

Lockport, N. Y.

Norvell-Wilder Supply Co. exhibit

Booths 104, 106, 108, 110, 112, 114, 116, 118, 120, 205, 207, 209, 211, 213, 215, 217, 219, 221

Western Sand-Banum Co., Inc.

Houston, Tex.

Booth 232

(See American Sand-Banum, Inc.)

Wheeler Reflector Co.

Boston, Mass.

Booths 939, 941

In attendance

H. A. BARNES L. F. CAPLETON
I. L. HENDERSON MARVIN BELL

The Wheeler Reflector Co. will feature lighting

equipment designed for use in hazardous locations. Included in its display will be the following types of equipment: Explosion-proof fixtures approved for use in atmospheres containing gasoline, petroleum, naphtha, alcohols, acetone, lacquer solvent vapors and natural gas; dust-tight and vapor-proof fixtures approved for use in establishments and industries where combustible dust atmospheres exist.

Other types of equipment on display will include gas-pump island lights, open and enclosed floodlights and various types of sign-lighting equipment.

The Wheland Co.

Chattanooga, Tenn.

Houston Oil Field Material Co. exhibit
Booths 150, 152, 154, 156, 158, 160, 251, 253, 255, 257, 259, 261

In attendance

CHAS. W. WHELAND GEO. E. CAMPBELL

Whitlock Cordage Co.

New York

Frick-Reid Supply Corp. exhibit
Booths 350, 352, 354, 356, 451, 453, 455, 457

Wickwire Spencer Steel Co.

New York, N. Y.

Booths, 164, 166

In attendance

R. J. JONES, JR. O. C. ELLIOTT
E. J. DALY D. J. HENECKER
K. A. ZOLLNER

The Wickwire Spencer Steel Co. will have an attractive exhibit pictorially presenting certain of the company's facilities completely to control production of wire rope from the ore to the final laying operation at its Palmer, Mass., plant.

The display will feature also a presentation of the

popular wire rope manual, "Know Your Ropes," and will include too the display of two or more reels of the rope itself.

Whitney Chain & Manufacturing Co.

Hartford, Conn.

Booths 659, 661

Wico Electric Co.

Springfield, Mass.

Booth 700

In attendance

HARRISON L. HART VICTOR K. HUNT
LEON F. SMITH J. M. JORDAN

The Wico Electric Co.'s complete line of oil-field and industrial magnetos will be exhibited, including the standard and heavy-duty series AP magneto, equipped with needle bearings and circulating oil lubricating system, for use on high-compression heavy-duty industrial engines and tractors. The Wico series A, for the lower-compression field, a light-weight, high-output magneto, with circulating oil lubrication, will be featured.

The series AP and A magnetos are said to incorporate the latest developments in design, featuring a new high residual capacity magnet steel, which gives a far greater spark output. The types OC and EK reciprocating magnetos, familiar in the oil field, will be shown. The new series FW flywheel magneto, for fractional-horsepower engines, will round out the display.

J. H. Williams & Co.

New York

Booths 115, 117

In attendance

J. H. WILLIAMS E. J. WILCOX
MR. SILLIMAN MR. WELLS

Two animated boards and six large tool-display panels will be featured by J. H. Williams & Co. One of the boards will show the Boll-Weevil Zephyr chain pipe-tong turning a pipe backward and forward. The other will show a tool-holder mounted on a lathe with a steel turning supposedly being machined off a steel disc. The panels will display the special cracking-unit socket wrenches, nonsparking beryllium copper wrenches, Superector line, adjustable wrenches and late-pattern socket, open-end and box wrenches. The new Supertong and special forgings will be shown.

The D. T. Williams Valve Co.

Cincinnati, Ohio

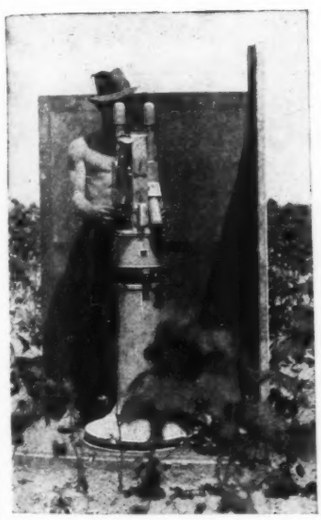
Booths 234, 236

The D. T. Williams Valve Co. plans to exhibit sectioned samples of all of its lines of regrinding stop and check valves; renewable and reversible nickel-alloy seat valves; plug-type valves, swing check valves, stop-cocks, gate valves—all for pressures of 150, 200, 300, 350 and 2,000 pounds.

Web Wilson

Huntington Park, Calif.

W-K-M Co. exhibit
Booths 504, 506, 508, 510, 605, 607, 609, 611.
Space 1002 outside



FAST

Latest type inclined beam Askania Torsion Balances. Normally cover one station in an hour and twenty minutes. This makes it possible to cover six stations per day per instrument without undue strain on the observer.

Its light weight, its portability, coupled with such speed of operation, makes it now possible to use Askania Torsion Balances with small parties; this reduction in personnel cuts station costs to an appreciable extent. Further unnecessary field expense is also eliminated by the fact that Askania torsion balance data are permanent—they need not be checked and rechecked.

• Cost of operation data and other details about Askania Torsion Balances will be gladly furnished on request. There's no obligation, of course.

ASKANIA

AMERICAN ASKANIA CORPORATION
M & M BUILDING HOUSTON, TEXAS

Distributors of

ASKANIA TORSION BALANCES—MAGNETOMETERS—SEISMIC EQUIPMENT

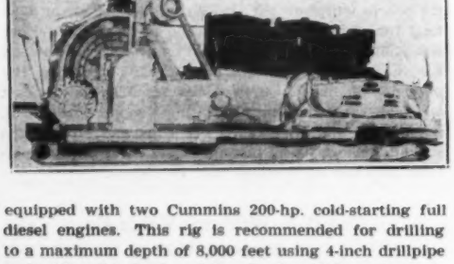
PORTABLE • FAST • ACCURATE • DURABLE STANDARD

Williamsport Wire Rope Co.
Williamsport, Pa.
Booth 559

Wilson Manufacturing Co.
Space 1022 outside
In attendance

BERT L. LIGON — JOHN H. WILSON
B. A. McCULLAH — MORRIS POLLARD
RUSSELL MOORE — H. V. FRAZEE

The Wilson Manufacturing Co., Wichita Falls, Tex., will feature its Atlas model portable rotary drilling rig,



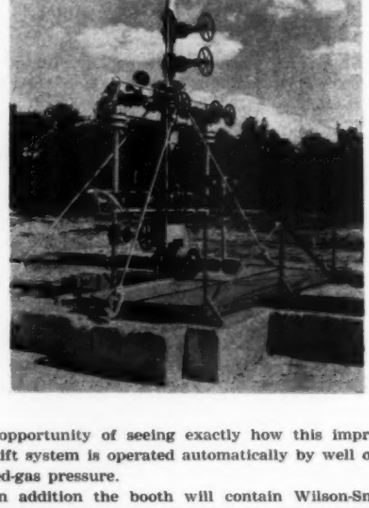
equipped with two Cummins 200-hp. cold-starting full diesel engines. This rig is recommended for drilling to a maximum depth of 8,000 feet using 4-inch drillpipe and setting 7-inch pipe. Like all other Wilson rigs, it is equipped with water circulating type brake-rings, patented tandem drive arrangement for use in compounding both engines, either on the mudpump or on the drawworks, and the Wilson chain-driven transmission, which is said to have proven, by actual field operation, to be a most successful means of transmitting power on a rotary drilling rig.

Various sizes of the Wilson winch will be on display, including the Giant model, equipped with a 100-hp. full diesel engine; the Mogul model, equipped with a 125-hp. gas-gasoline engine; the Super model, mounted on a model WA-40 International wheel-type tractor, equipped with pneumatic tires, and a Senior model, equipped with a V-8 Ford motor.

Worthington Pump & Machinery Corp.
Harrison, N. J.
Houston Oil Field Material Co. exhibit
Booths 150, 152, 154, 156, 158, 160, 251, 253, 255, 257, 259, 261

Wilson Supply Co.
Houston, Tex.
Booths 238, 240, 339, 341

The Nixon surface-control gas-lift system will be the highlight of the Wilson Supply Co. exhibit. A full-size unit will be in operation, so that visitors will have



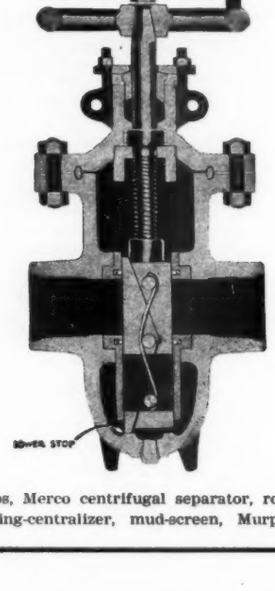
the opportunity of seeing exactly how this improved gas-lift system is operated automatically by well or injected-gas pressure.

In addition the booth will contain Wilson-Snyder slushpumps, American Cable Co. Tru-Lay Pre-formed wire rope, Sievers reamers, Bowen pack-off and releasing drillpipe overshot, and other oil-field equipment for which Wilson Supply Co. is exclusive Gulf Coast distributor.

W-K-M Co.
Houston, Tex.
Booths 504, 506, 508, 510, 605, 607, 609, 611.
Space 1002 outside
In attendance

FRED McMANIS — LEE KOEN
J. D. RICE — L. C. WHITTEN
M. P. LAURENT — GEORGE FRANKS
12 W-K-M SALESMEN

The W-K-M Co. will display the W-K-M through-conduit lubricated gate valve, the W-K-M rotary and



tubing slips, Merco centrifugal separator, round kelly drive, casing-centralizer, mud-screen, Murphy diesel

The MODERN METHOD *is*

GAS LIFT

THE MOST NATURAL OF
THE ARTIFICIAL MEANS
OF PRODUCING OIL

●

from
COMPLETION TO DEPLETION
with
BRYAN AUTOMATIC
WELL FLOWING EQUIPMENT

When considering the METHOD,
Remember the NAME:

GAS LIFT CORPORATION
DALLAS TEXAS

COMPLETE ENGINEERING SERVICE

STOCK IN PRINCIPAL AREAS

California Distributor:
M. O. JOHNSTON OIL TOOLS, Inc.
Los Angeles

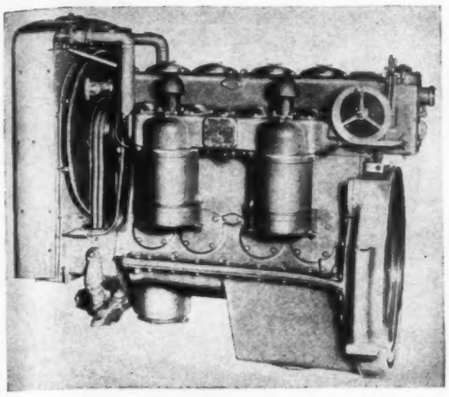
—that's where we make a lot of
FRIENDS
!

UNIBOLT Steel Couplings give you a perfect seal on the toughest connections. They are much easier to install in close, inaccessible places because of compact design, small size and light weight compared to conventional connecting devices, and because of time and labor saving. And, on problems of misalignment . . . the medium pressure Malleable UNIBOLT allows 5 degrees of misalignment.

Note, in the 6,000 lb. test UNIBOLT at right, the compact design compared to the average bulky union.

THORNHILL — UNIBOLT — CRAVER CO.
Houston — Texas

engine, Twin-Seat valve, everlasting blow-off valve, pipe-cleaning machine, sucker-rod hanger, brake-lining

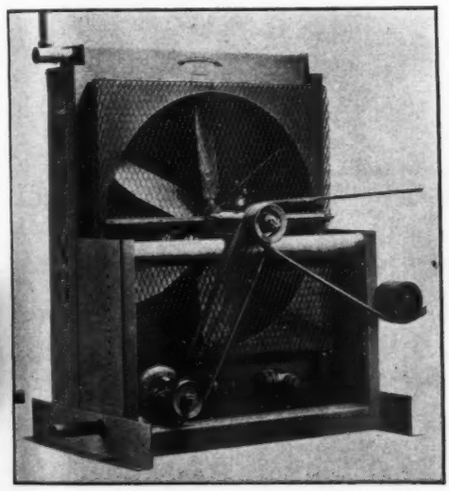


Murphy diesel engine.

and the new water-softener, which this company is exclusively distributing in the Mid-Continent and Gulf Coast.

Young Radiator Co.
Racine, Wis.
Spaces 1304, 1306 outside
In attendance
JOHN J. HILT WILLIAM WALTON
CHARLES F. CUSHMAN

The Young Radiator Co. will center attention on the Young jacket water cooling system, a self-contained



portable unit including cooling-coil, fan, water pump, drive, and all necessary equipment for cooling gasoline or diesel engines, ranging in size from 25 to 125 horsepower.

The other products shown will include Young heavy-duty radiators, which are used by many manufacturers of power equipment; Young oil-coolers, heat-exchangers, and various types of heating and cooling surfaces. The type of construction will be exemplified in each case by a detailed section of the core.

Youngstown Steel Products Co.
Youngstown, Ohio
Booths 328, 330
Continental Supply Co. exhibit

Youngstown Sheet & Tube Co.
Youngstown, Ohio
Booths 328, 330
Continental Supply Co. exhibit

John Zink Co.
Tulsa, Okla.
Booth 145
In attendance
JOHN ZINK JIM MORGAN

The John Zink Co. will feature the horizontal Bi-Mix burner for stills and boilers and the vertical Bi-Mix burner for oil-country type boilers. The complete line will be on display, including Bi-Mix short-flame burners, for stills and boilers; combination gas and oil burners, for stills and boilers; low-pressure multijet Bi-Air burners, heating boilers; low-pressure Star burners, heating boilers; domestic burners; steam atomizing oil burners; straightening vanes for gas, oil, or steam lines; louver type oil and gas burners for stills and boilers; drilling-boiler burners.

Touring Oil Fields

John L. Wamsley, Tulsa manager of oil-country sales for the Diamond Chain & Manufacturing Co., is conducting a group of executives of the company on a field trip through Kansas, Oklahoma, Louisiana and Texas, arriving in Houston, Tex., in time for the opening of the Oil-World Exposition. Included in the party are Walter B. Haislup, general sales manager; Woodward A. Warrick, mechanical engineer, and Dal R. Hodges, treasurer, all from the factory in Indianapolis, Ind.

Chemical Exposition

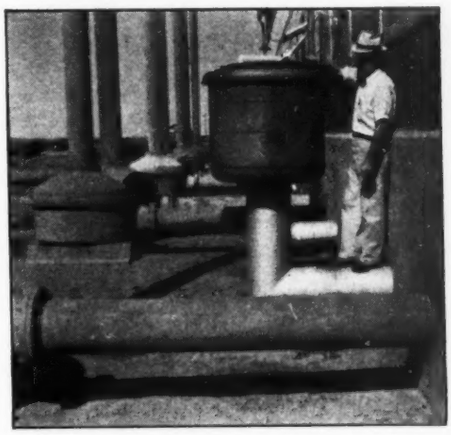
Survival or advance in so many industries is dependent upon the technical advances of chemistry and chemical engineering that the present united American chemical industry represents a key factor in our national life. The Sixteenth Exposition of Chemical Industries will be held at Grand Central Palace, New York, during the week of December 6 to 11, 1937, and will provide a preview of plant process machinery, laboratory apparatus, instruments, chemicals and chemical products reflecting the current acceleration along the entire industrial front of American enterprise.

Following an established custom, the student course in chemical engineering will be held during the week of the Chemical Exposition. Prof. W. T. Read, dean of chemistry at Rutgers University, who has served as director of the student course at previous expositions, will again be in charge this year. Prof. Harry J. Masson, head of the department of chemical engineering at New York University, is chairman of the educational committee of the exposition, under whose auspices the student course in chemical engineering is held.

The Sixteenth Exposition of Chemical Industries will be under the personal direction of Charles F. Roth, who has directed each Chemical Exposition since the first one was organized in 1915. Mr. Roth is president of the International Exposition Co. Headquarters of the company are at Grand Central Palace, New York.

Air-Maze Filter to Be Exhibited at Houston Exposition

C. J. Glanzer, assistant chief engineer, and A. D. Barr, southwestern representative of Air-Maze Corp., Cleveland, Ohio, manufacturer of air filter equipment, will be in attendance at the exhibit of the John Muller Co. at Houston, Tex., where a working model of an Air-Maze filter will be on exhibition.



J. B. Stewart, superintendent, Northern Natural Gas Co., Skellytown, Tex.

SEE "CLEVELAND'S" EXHIBIT

at "HOUSTON OIL-WORLD EXPO."

You are cordially invited to see how and why "Clevelands" cut operating costs, speed up your production and simplify the job of Pipeline Ditching. Then, be convinced on your job by actual demonstration.

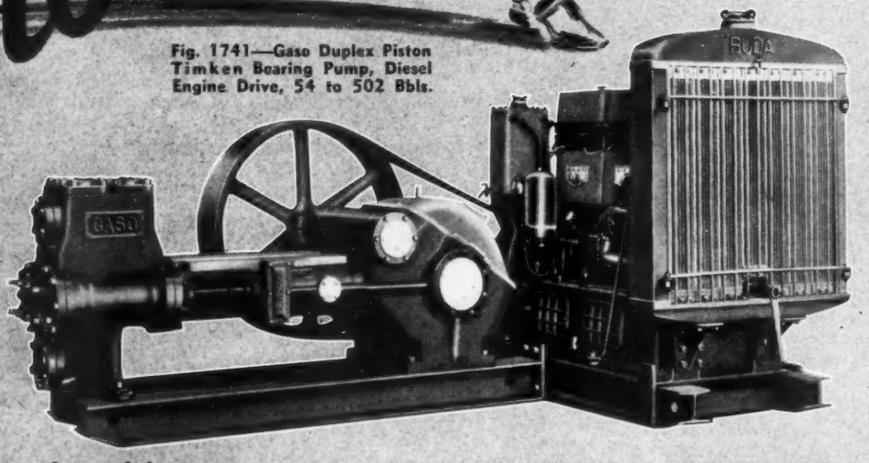
THE CLEVELAND TRENCHER COMPANY
20100 St. Clair Ave. Cleveland, Ohio

One important "Cleveland" idea—illustrated at left—high-speed, low-cost transportation via special trailer. "Clevelands" load or unload in 10 to 15 minutes. Thus machine savings are made available even on scattered short lines, "hot-spot" reconditioning, etc.

CLEVELANDS

Hail to the Champs

Fig. 1741—Gaso Duplex Piston Timken Bearing Pump, Diesel Engine Drive, 54 to 502 Bbls.



● Eight hopeful teams take the field in April. ONE captures the championship in October. Analyze the winner and you will find that it's a team which, like GASO PUMPS, has the balance and power to do a good job every day and the reserve strength to cope with emergencies. Have you a copy of our catalog? . . . Gaso Pump & Burner Mfg. Co., Tulsa, Okla. Export Office: 149 Broadway, New York.

Complete Gaso Condensed Catalog in 1937 Composite Catalog

GASO PUMPS

for every oil industry need

FIELD OPERATIONS

Summarizing the Week's Developments

OKLAHOMA

Wildcat oil pool openers were completed in section 15-6-6, Seminole County, klahoma, and in section 24-11-4e, Pottawatomie County, and a third wildcat com-tion of the week opened a new gas area in section 24-8-8, Hughes County. ree offsets to the new Wilcox sand extension well south of the Braman pool, y County, were started in section 8-28-1w. A closely watched wildcat in section 2n-9, Coal County, was to test a showing of oil and gas in Viola lime at 70-75 feet.

KANSAS

A new oil area was opened in section 1-11-18w, northern Ellis County, Kansas. discovery in section 13-16-14w, and an extension to the Steuder pool in section -16-13w, both in Barton County, were near completion. The largest oil well in Otis-Albert sector, Rush County, was near completion in section 23-18-16w. teen oil wells were completed in Russell County.

TEXAS

The largest well in Fisher County, Texas, history flowed 1,000 bbls. in five urs, but is variously rated as potentially good for from 13,000 to 20,000 bbls. a day. tor and Winkler continue to bring in new wells of large production, but the aver-e per well is below what it was earlier in the year. A new well in Hockley County rted at 432 bbls. per day and an 892-bbl. well was completed in Yoakum County. the Panhandle eight new gas wells in Moore County aggregated 586,500,000 feet tially, an average of 73,312,500 feet per day per well. In the Gulf Coast, the North Cheek field in Jefferson County, heretofore a distillate pool, was given its first crude oil well, good for 690 bbls. a day. Hastings was extended northerly. The pool that opened Newton County to production tested 126 bbls. a day with some sediment and water. The third location in the Gulf of Mexico was made off the Jefferson County shore. Three important wildcat locations were made in Calcasieu and Jefferson Davis parishes in South Louisiana. Maverick County in Southwest Texas is promised a new pool. The East Texas field observed its seventh birthday on Saturday, October 2. It is estimated to have produced 1,076,434,000 bbls. of oil. This may not account for all the hot oil unreported, although it does account for 74,000,000 bbls. of it.

WYOMING

In the Lance Creek field, Niobrara field, Wyoming, a deeper pay was opened by a test that started at 100 bbls. an hour.

CALIFORNIA

The Central Committee of California Oil Producers having named 660,000 bbls. as the October daily allowable from that state, it is expected, in the light of past experience that the state will exceed 700,000 bbls. a day this month.

MICHIGAN

Two western outposts to the Buckeye field in Gladwin County, Michigan, came in dry. They were too far away from production too hit pay. The midway area was more closely joined to the south Buckeye pool by a brace of new wells.

Completions in All Fields

(Week Ending October 2, 1937)

	Oil	Gas	Dry	Total	1937 total comp. to date	1936 total comp. to date
Y., Pa., W. Va.	79	20	13	112	3,335	2,810
io	10	8	6	24	906	581
iana	0	0	0	0	70	147
ntucky	11	3	9	23	477	225
nois	10	0	2	12	155	31
chigan	10	4	3	17	588	632
nsas	43	1	11	55	1,958	1,249
lahoma	21	1	9	31	2,078	1,997
xas:						
North Central Texas	31	0	16	47	2,154	2,058
West Texas	50	0	4	54	2,053	1,170
Texas Panhandle	10	10	0	20	575	499
East Texas	56	0	1	57	1,780	1,997
East Central Texas	11	0	5	16	540	268
East Texas Border	2	0	0	2	270	85
Gulf Coast Texas	29	0	10	39	1,175	940
Southwest Texas	56	3	18	77	2,511	2,158
Total Texas	245	13	54	312	11,058	9,175
rth Louisiana	9	5	1	15	496	513
lf Coast Louisiana	8	1	3	12	351	376
Total Louisiana	17	6	4	27	847	889
ansas	0	0	1	1	113	72
ntana	3	2	1	6	169	184
oming	0	1	0	1	83	87
lorado	0	0	1	1	17	21
w Mexico	4	0	0	4	560	437
ah	0	0	0	0	2	5
lifornia	25	0	9	34	1,146	870
Total United States	478	59	123	660	23,562	19,412
Total previous week	508	61	151	720		
Difference	30	2	28	60		

Outstanding Fields—Highlights

(Week Ending October 2, 1937)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
Hastings	8	17	7	4,021	315	23,467
McCampbell	4	13	3	240	62	4,250
Saxet	3	25	3	375	545	42,650
Benavides	6	14	5	960	63	5,170
East Texas	48	110	56	2,041	23,624	483,200
Talco	6	31	9	2,831	490	31,900
Ector County	16	86	18	13,884	646	30,500
Winkler County	13	44	6	4,148	1,434	42,750
OKLAHOMA						
Fitts	4	38	5	4,178	880	74,325
Billings	2	9	1	2,379	50	8,125
KANSAS						
Ellis County	5	43	9	12,532	211	8,575
Barton County	8	47	5	4,067	223	10,865
Russell County	6	61	15	13,728	876	36,095
Rice County	4	45	6	3,271	986	37,285
NEW MEXICO						
Lea County	14	113	4	414	1,473	106,450
LA-ARK-TEX						
Rodessa, Ark.	2	26	0	0	13	7,522
Rodessa, La.	1	10	2	865	413	49,802
Rodessa, Tex.	3	21	2	1,680	315	33,549
Lisbon, La.	2	22	5	7,010	122	15,836
MICHIGAN						
Buckeye	7	62	9	2,350	238	23,364
CALIFORNIA						
Wilmington	11	26	7	2,406	269	56,800
ILLINOIS						
Central Illinois	26	100	10	2,628	130	17,500

Texas and Louisiana Gulf

By
F. L. SINGLETON

DISTILLATE POOL DEVELOPS INTO CRUDE OIL PRODUCER

HOUSTON, Tex., Oct. 4.—The North Cheek field, Jefferson County, opened in June as a distillate field by the Magnolia Petroleum Co., was converted into an oil field when the same company completed No. 2 J. H. Phelan, 933 feet south of the discovery well in the S. Stevens Survey. On a 24-hour gauge it flowed 690 bbls. of 44-gravity oil through a quarter-inch choke, with tubing pressure 1,850 pounds and casing pressure 2,030 pounds. The gas-oil ratio was 935 to 1. Production is from 5 feet of oil sand bottomed in the Lower Frio at a total depth of 8,682 feet. The well is producing from a depth approximately 240 feet lower than the discovery well that flowed 392 bbls. of 61.8 distillate per day through a quarter-inch choke. The two wells are on a large block controlled by Magnolia Petroleum Co., about 2 miles south of the Amelia field where prolific production is found at 6,800 feet.

Much interest continues to be centered on the wildcat test of Merit Oil Co. No. 1 T. & M. Wright, on the Cedar Bayou Prospect in Chambers County, which is coring ahead in the Frio section where additional showings are reported to have been encountered. Having tested 210 feet of oil and several hundred feet of salt water on a drill stem test in the Marginulina sand at 6,441-56 feet, the well is coring ahead in the Frio sand, with a good odor of oil cored at 6,572-74 feet and at 6,610 feet. A drill stem test was attempted at 6,572 feet, but the seat failed to hold and the test was unsuccessful.

Hastings Extended

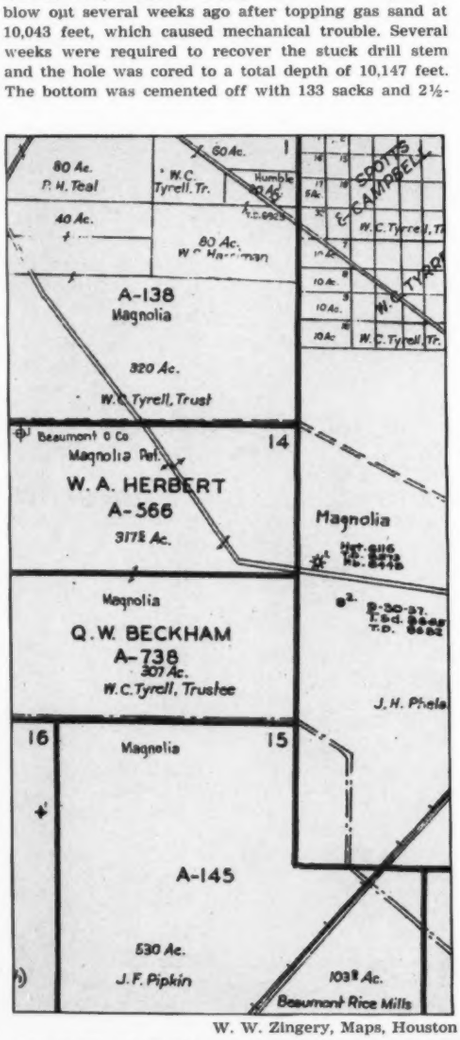
The northern limits of the Hastings field, Brazoria County, has apparently been extended approximately 950 feet by Pearland Oil Co. No. 1 C. H. Alexander, which is bottomed in sand, showing oil, at 6,080 feet. Sand was topped at 5,986 feet, and 7-inch casing has been cemented on bottom. The well is in the H.T.&B. Survey No. 28, due north of Jay Simmons No. 1 Alexander that extended the field 1,000 feet a few weeks ago.

The discovery well of Republic Production Co. and Houston Oil Co. No. 1 Peavy Moore, which recently opened the first production in Newton County in the South Call area, was given a potential test, and flowed 126 bbls. of fluid, less 2 per cent basic sediment and 3.4 per cent salt water, through a three-sixteenths inch choke, with tubing pressure 855 pounds and casing pressure 1,475 pounds. Since the well was completed at a plugged-back depth it is possible that the salt water is due either to a bad cement job or to the fact that the perforations were made too low in the sand section. It is producing from the Upper Cockfield at 6,908-18 feet.

The salt water level of the south extension area of the Friendswood field, Harris County, has been determined by Humble Oil & Refining Co. No. 2 Beamer, which was purposely drilled into the salt water sand at 6,135 feet. The hole has been plugged back to 6,100 feet, and 5½-inch casing cemented at 6,032 feet. The well offsets V. H. Borsodi No. 1 Ross to the north, and is in the T. Choate Survey. V. H. Borsodi No. 1 Berlowitz was completed through perforated casing at 6,106-14 feet and it flowed 190 bbls. per day through a 5/32-inch choke with tubing pressure 540 pounds and casing pressure 940 pounds. The wells thus far drilled in this area indicate that the structure is dipping southerly although the amount of sand cored in No. 1 Ross will allow several short extensions to be made.

Gulf Oil Corp. No. 8 Wing, an outpost test of the Segno field, Polk County, continues to attract attention by having encountered favorable showings several thousand feet lower than the main producing horizon. The hole is bottomed at 6,127 feet and is scheduled to be cored ahead. Three drill stem tests made at intervals from 6,019 feet to 6,088 feet showed several hundred pounds of working pressure and as high as 105 feet of distillate. Geological markers are not available on this well, but it is apparently approaching the Cook Mountain.

Preparations are being made by the Sun Oil Co. to test No. 1 John Ward, a 10,000-foot hole in the Labelle field, Jefferson County. The well attempted to blow out several weeks ago after topping gas sand at 10,043 feet, which caused mechanical trouble. Several weeks were required to recover the stuck drill stem and the hole was cored to a total depth of 10,147 feet. The bottom was cemented off with 133 sacks and 2½-inch tubing is being run for a production test after drilling out cement to a total depth of 10,060 feet.



W. W. Zingery, Maps, Houston

North Cheek field, showing location for Magnolia Petroleum Co. No. 2 J. H. Phelan completed last week as the first oil producer

Dickinson Completions

Four completions were reported for the Dickinson field, Galveston County, Atlantic Refining Co. No. 2 Anderson perforated casing at 8,126-35 feet, and flowed 502 bbls. per day through a quarter-inch choke, while Pure Oil Co. No. 3-B Shelor flowed 207 bbls. per day through a quarter-inch choke from perforations below 8,100 feet. Both wells are located in the Way area in the northwestern part of the field. In the Gillock area, Kenben Oil Co. No. 5 Maco Stewart flowed 682 bbls. through a quarter-inch choke from a total depth of 8,811 feet, while Turman Oil Co. No. 3 Stewart flowed 936 bbls. through the same size chokes. Both wells are in the W. K. Wilson Survey.

On the Peach Point Prospect, Brazoria County, Pure Oil Co. made location for its second wildcat. It is No. 1 N. W. Smith in the southwest corner of the S. F. Austin 2½ League. The company's No. 1 Slade was recently abandoned in heaving shale below 8,300 feet. Across the line in Matagorda County, Sun Oil Co. staked location for No. 1 Fred Robbins in the C. H. Vandeveer Survey.

The third location in the Gulf of Mexico was made by I. E. Harwell and others for No. 1 State, 150 feet south of the shore line of Jefferson County and in center of east and west of Survey No. 72.

Louisiana Coast

Interesting developments in the Louisiana sector of the Gulf Coast region included important showings of oil and gas in two wildcats in Lafourche and Plaquemines parishes, Louisiana, and the announcement of three important wildcat locations. On the Quarantine Bay Prospect, Plaquemines Parish, Gulf Oil Corp. No. 3 State was shutdown awaiting orders at 5,442 feet after coring broken sandy shale, showing oil, at 6,464-72 feet. The structure centers in section 17-19s-17e which was found by the use of seismograph instruments in 1926.

In the Raceland area, Lafourche Parish, Amerada Petroleum Corp. was reaming hole in No. 1 South Coast Corp. which is bottomed in sand showing oil, at 7,451 feet. A Schlumberger survey showed 155 millivolts porosity and from 2 to 4 ohms resistivity, with a show of salt water at 7,283-76 feet. The sand section was topped at 7,239 feet, and medium to fine grained oil sand was cored at 7,240-45 feet and 7,263-74 feet. From 7,274-79 feet, a 5-foot core was recovered, of which the first foot carried no show while the balance had a brackish taste. Location is in section 34-15s-19e.

Humble Oil & Refining Co. is moving in material for its second test in the North Crowley field in Acadia Parish, opened last week by the completion of No. 1 Federal Land Bank. The new location is for No. 1 Anton Ohlenforst, northeast offset to the discovery well, in section 45-8s-1e.

Locations for three important wildcats were staked in Calcasieu and Jefferson Davis parishes. In the western part of Calcasieu Parish, near the Newton County line, Federal Petroleum Co. is moving in material for No. 1 Sabine, section 25-8s-14w. This test is on the Conroe Trend and it will probably be drilled to the Cook Mountain horizon recently opened in Evangeline Parish by the Continental Oil Co. West of Lake Charles, Union Sulphur Co. has derrick up for No. 1 Mrs. J. A. Bel, southeast corner of section 10-10s-10w. In the extreme southeast corner of Jefferson Davis Parish, Continental Oil Co. No. 1 Marie H. Van Geffen is located out of the southwest corner of section 32-10s-3w.

Four additional producers were completed on the southwest flank of the old Jennings field, Acadia Parish, W. T. Burton No. 3 J. J. Roboria, section 41 flowed 37 bbls. per hour through a quarter-inch choke from a screen setting at 7,085-7,276 feet, total depth. In section 42, Cosmo Petroleum Co. No. 1 Cruse flowed 965 bbls. per day through a quarter-inch choke from a total depth of 7,226 feet. Superior Oil Co. No. 5 Leckelt, section 42, flowed 132 bbls. per day through a 7/64-inch choke from a total depth of 7,146 feet, while the same company's No. 2 Moresi in section 41 flowed 368 bbls. per day through a 13/64-inch choke from perforations made in the 7-inch casing at 6,675-6,655 feet.

Mechanical trouble has delayed the progress of Continental Oil Co. No. 1 Brookshire a projected 12,000-

(Continued on Page 293)

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Allen & Morris of San Antonio have opened an important Edwards lime pool in Maverick County for Wellington Oil Co. in No. 1 Chittim, which is located northeast of Eagle Pass, and about 3,000 feet east of the old Chittim gas field on a block of 375,000 acres. The well was contracted to be drilled to 6,000 feet or to the Lower Glen Rose lime, but got saturation in the Edwards lime at 3,287 feet where it flowed at the rate of 10 bbls. of pipe line oil per hour through a three-eighths inch choke. Its initial production will probably be raised after acidizing.

T. A. Carlton, president of the Carlton Drilling Co., has reentered the contracting business by purchasing a new heavy duty steam rig which has been moved to the Hitchcock field where No. 1 Stewart has been spudded for the Merit Oil Co.

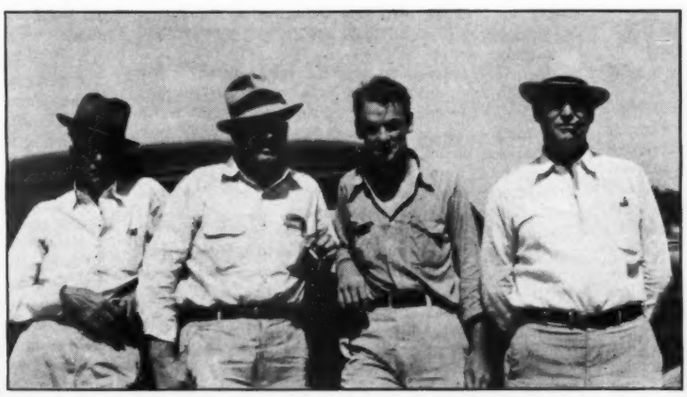
Cron & Gracey received a contract from Shell Petroleum Corp. for a deep test in the Gibson field in Terrebonne Parish, Coastal Louisiana, and drilling operations will be started this week. In the meantime, the firm has 10 rigs drilling as follows. One at Lake Long in Lafourche Parish for the Fohs Oil Co.; two at Hackberry for Stanolind Oil & Gas Co.; five in the Hastings and Dickinson fields for the same company; one at Flour Bluff for Humble Oil & Refining Co. and one at Tomball for Shell Petroleum Corp.

Edwards Drilling Co. completed two producers in the Dickinson field in Galveston County, one being the largest producer yet completed which extended the Gillock field several hundred feet west. The large oil well was completed for Turman Oil Co. on the Stewart lease and flowed 936 bbls. per day through a quarter-inch choke, while in the northwest part of the field Ken-Ben Oil Co. No. 5 Stewart flowed 682 bbls. per day through the same-size choke. McCurdy & Johnston No. 1 State, located in the Brazos River of the Lockridge field, is being spudded while in Hardin, Hastings and Amelia fields drilling operations continue for the Woodley Petroleum Co. and Humble Oil & Refining Co., respectively.

George Echols is completing two wells in the Placedo and Heyser fields for Westage Oil Co. and Sinclair Prairie Oil Co.; is drilling below 3,200 feet on the Lander lease at Heyser for himself, and is drilling below 6,200 feet on the McReynolds lease of the Lodi area in Marion County.

Smith & McDannald received contract from the Shell Petroleum Corp. for a deep test to be drilled on the southeast flank of the old Jennings field in Acadia Parish, Louisiana, and is moving in two rigs to location at the Dickinson field for Pure Oil Co. At Charenton, in St. Mary Parish, for the Pan American Production Co. preparations are being made to test No. 1 Veeder which has the appearance of opening a new shallow sand at approximately 1,800 feet. Six other active rigs are located at South Houston, Hastings, Louise, Arkansas and St. Martinsville for Stanolind Oil & Gas Co., Pure Oil Co. and Tide Water Associated Oil Co. and Texas Seaboard Oil Co.

O. W. Dyer completed two wells in the Dickinson and Magnet fields for the Atlantic Refining Co. and has moved over to new locations. In the meantime he has four rigs running in the McCampbell field for the same company and is drilling a wildcat 3 miles west of Wesalco for the same company in Hidalgo County. Other contractors in the McCampbell field are Carter Drilling Co. and the Baltic Drilling Co.



These men are active in the development of the McCampbell field of Aransas and San Patricio counties, South Texas. Left to right: G. A. (Skeet) Hillburn, drilling superintendent, O. W. Dyer; S. D. Hambrick, production foreman, Atlantic Refining Co.; Owen B. Wood, geologist, Atlantic Refining Co. and E. E. Sorey, Cowan & Sorey Well Service

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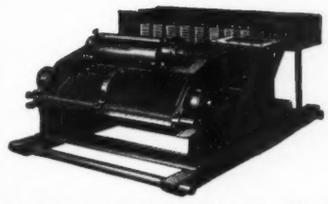

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Oklahoma Operations

By DAL DALRYMPLE

BRAMAN REVIVED BY WILCOX WELL, NEW TESTS STARTING

Revival of activity in the old Braman area of northwestern Kay County, apparent limitation of the Wilcox zone of the Billings pool in Noble County to the southwest and the favorable showing of a Coal County wildcat were features of the week in Oklahoma.

The new interest at Braman was occasioned by the success of E. J. Shaffer and associates at No. 1 Haunchild, NW NW SW section 8-28-1w, southwest extensioner of the old pool. It produced 460 bbls. of oil by heads in 28 hours while cleaning out and testing from Wilcox sand at 3,514-33 feet, total depth. Location for an east offset was staked, and work was started at Shell Petroleum Corp. No. 1 Horne, SE SE NW section 8-28-1w, and at L. H. Wentz No. 3 Andrews, SW SW NE section 8-28-1w.

The southwest trend at Billings apparently was defined at Champlin Refining Co. No. 1 Gassoway, NE NE NW section 28-23-2w, when water intruded with oil at 4,366 feet in Wilcox sand. Operators were moving in standard tools to plug off the brine. A 2,379-bbl. well was completed at Billings, and another well was near completion at Continental Oil Co. No. 9 Conway, NE SE SW section 16-23-2w, on the west side of the field, which was good for 1,647 bbls. of oil at 4,287 feet, total depth.

Carter Oil Co. No. 1 Claytor, C W half NE SW section 27-2n-9, wildcat in the Centrahoma area, Coal County, was being closely watched as it neared a decision. Nine-inch casing was set at 6,016 feet after good saturation and a show of gas had been found in a core from 6,070 to 6,075 feet in Viola lime. It was due to be tested in that horizon, but will be deepened to Wilcox sand if commercial production is not found in the Viola.

Wildcat Completions

W. B. Pine No. 1 Amoson, SE SE SW section 15-6-6, opener of a new Wilcox sand producing area in southern Seminole County, was prorated to 100 bbls. of oil daily and completed. It topped first Wilcox sand at 3,595 feet, second Wilcox sand 3,763 feet, total depth 3,781½ feet, and flowed 442 bbls. of oil in 1½ hours. It flowed as high as 1,967 bbls. in 24 hours, cutting 3 per cent sulfur water. The wildcat is northwest of the Traugh pool, which is producing from Senora sand at around 2,400 feet, and is southeast of the old Konawa pool, from which it is cut off by a series of dry holes.

Mid-Continent Petroleum Corp. No. 1 Ne-Thah-Pea-Se, SW SW NE section 24-11-4e, discovery well in the North Shawnee pool, Pottawatomie County, was completed at 4,886 feet, total depth. It swabbed 210 bbls. of accumulated oil in 20 hours, later flowed 110 bbls. of oil through tubing in seven hours, and was flowing at the rate of 135 bbls. of oil daily through tubing on completion. Pure sand was topped at 3,610 feet, Earlsboro 3,925 feet, Mayes 4,515 feet, Woodford 4,668 feet, Hunton 4,732 feet, Sylvan shale 4,747 feet, Viola lime 4,814 feet, Simpson dense 4,845 feet, Dolomite 4,853 feet.

W. O. Allen No. 1 Barnard, SW cor. section 24-8-8, opened a new gas area north of Holdenville in Hughes County. It had Gilcrease series at 2,995 feet, Cromwell sand 3,304 feet, Mississippi Caney 3,650 feet, Mayes 3,837 feet, Woodford 3,927 feet, Hunton 3,972 feet, Sylvan 4,122 feet, Viola 4,185 feet, Dense 4,220 feet, Dolomite 4,229 feet, Wilcox sand 4,260 feet, total depth 4,274 feet, plugged back to 3,423 feet, was shot and produced 2,000,000 feet of gas, completed.

Clark Drilling Co. and others No. 1 Wilson, C SE SE section 15-5n-18, wildcat in Latimer County, was abandoned temporarily at 6,515 feet, total depth. Hole was mudded back to 3,800 feet, gas broke out between casing and the well was killed.

A. L. Larson and others No. 1 Mason, SW SW SE section 35-1n-14e, wildcat in northeastern Atoka County, was reported abandoned at 200 feet, total depth.

Estimated Daily Production

Estimated daily production of Oklahoma for the week ending October 2 and for the preceding week was as follows:

	Barrels	
	Oct. 2	Sept. 25
Allen	5,275	5,350
Billings	8,125	8,200
Burbank	7,925	7,950
South Burbank	13,500	13,250
Balance Osage	20,750	20,750
Blackwell district	5,100	5,450
Bristow-Slick	7,250	7,175
Chandler	2,775	2,750
Crescent	7,850	7,875
Cromwell	3,400	3,425
Cushing-Shamrock	10,800	10,900
Duncan district	3,950	3,975
Edmond	15,450	15,500
Fish	5,875	6,025
Fitts	74,325	79,725
Jesse	2,850	3,325
Graham	4,425	4,400
Gray	1,200	1,175
Healdton	10,200	10,150
Hewitt	4,250	4,275
Holdenville	875	875
Keokuk	6,575	8,400
Konawa	1,675	1,500
Lucien	14,650	14,750
Moore	9,675	9,875
Oklahoma City	141,750	147,150
Olympic	10,700	11,650
Polo	875	800
Sasakwa and townsite	2,550	2,550
Sholem-Alechem	3,025	3,050
Seminole:		
Bowlegs	11,450	11,200
Carr City	5,100	5,075
Earlsboro	6,400	6,250
South Earlsboro	700	725
East Earlsboro	7,375	7,725
Little River	9,525	12,050
East Little River	1,075	1,050
Maud	725	750
Mission	2,000	1,825
Seminole	9,700	9,475
East Seminole	2,375	2,550
Searight	4,300	4,375
Total Seminole	60,725	63,050
St. Louis-Pearson	18,525	20,050
Tatums	5,800	5,750
Tonkawa-Garber-Thomas	4,500	4,650
Wewoka	2,875	3,025
Yale-Jennings	4,175	4,200
Other pools	76,950	77,500
Total Oklahoma	581,175	600,450

Pontotoc County

Patsy Oil Co. No. 1 Mayhue, NW NE SE section 20-2n-6, Fitts district, Pontotoc County, topped Cromwell sand at 3,230 feet, was bottomed at 3,331 feet, swabbed 90 bbls. of oil in 12 hours and pumped 140 bbls. daily, completed.

Crusaders Petroleum, Inc., No. 3-B Morin, SE SW SE section 20-2-7, flowed 130 bbls. of oil in 24 hours from Cromwell sand topped at 2,638 feet, total depth 2,665 feet.

Stahi Petroleum Co. No. 4-C Dennis, SE SW SW section 21-2-7, found Cromwell sand at 2,626 feet, total depth 2,658 feet, plugged back to 2,645 feet and pumped 68 bbls. of oil in 24 hours.

Sinclair Prairie Oil Co. No. 4 McCarty, NW NW NE section 22-2-7, found Hunton lime at 3,955 feet, total depth 4,029 feet, was acidized, flowed 186 bbls. of oil net in one hour and made potential of 2,562 bbls., with 2,100,000 feet of gas.

Sinclair Prairie Oil Co. No. 6 Moody B, SE NW NW section 22-2-7, had Hunton lime at 3,867 feet, was bottomed at 3,878 feet, and made potential of 3,704 bbls. of oil after acid treatment. Gas gauged 2,800,000 feet.

Magnolia Petroleum Co. No. 2 Norris, SW SE NE section 21-2-7, an old Fitts well, was plugged back from 3,760 feet to 3,642 feet, drilled out to 4,117 feet, acidized, flowed 337 bbls. of fluid in six hours, cutting 12 per cent salt water, and was recompleted as a minimum well.

In the Jesse district, Continental Oil Co. No. 5 McCarty, NW SE NW section 12-1n-7, found Wilcox sand at 4,741 feet, total depth 4,743 feet, flowed 105 bbls. of oil in three hours and made potential of 879 bbls., with 4,000,000 feet of gas.

Mid-Continent Petroleum Corp. No. 8 Statler, SE NW SW section 2-1n-7, flowed 776 bbls. of oil in three hours through casing and made potential of 1,764 bbls. of oil from Bromide topped at 4,380 feet, total depth 4,561 feet.

E. H. Moore and others No. 1 Blackstock, NW NE NE section 4-1n-7, topped Hunton lime at 3,730 feet, Sylvan shale 4,030 feet, Viola lime 4,160 feet, total depth 4,430 feet. It was acidized and flowed 13 bbls. of oil in six hours, averaging 25 bbls. daily on completion.

Same operators' No. 2 Blackstock, SW NE NE section 4-1n-7, found Hunton lime at 3,736 feet, Sylvan 4,025 feet, total depth 4,028 feet, was acidized and flowed 29 bbls. of oil in 24 hours.

In the Bebee district, E. W. Jones No. 1 Starrett, NW NE SE section 21-5-5, had Viola lime at 2,591 feet, total depth 2,662 feet, plugged back to 2,639 feet, swabbed 40 bbls. of oil and 400 bbls. of water, and later pumped 30 bbls. of oil and 60 bbls. of water in 24 hours, completed.

Benedum-Trees Oil Co. No. 10 South Mole, NE NW NE section 31-5-5, had Wilcox sand at 2,690-91 feet total depth, had a hole full of water and was abandoned.

New work in Pontotoc County: Patsy Oil Co. No. 2 Mayhue, NE NE SE section 20-2n-6, rig; Continental Oil Co. No. 1 Smith, NW SW SW section 2-1n-7, location; Francis Oil & Gas Co. No. 2 Provence, NW cor. section 2-1n-7, spudded; Mid-Continent Petroleum Corp. No. 9 Statler, SW NW SW section 2-1n-7, building rig; Stahi Petroleum Co. No. 3-C Dennis, SW SE SW section 21-2n-7, building rig; Magnolia Petroleum Co. No. 2 Young, NE NE NW section 22-2-7, building rig; same company's No. 4 Statler, NE SE SW section 28-2-7, building rig.

Seminole County

Winona-Jarvis-Holm No. 1 Fish, NE NW NE section 19-7-8, Fish area, Seminole County, topped Gilcrease sand at 2,931 feet, was bottomed at 2,995 feet, was shot, swabbed 109 bbls. of oil in 24 hours, cleaned out and swabbed 140 bbls. of oil in 24 hours, completed.

Texas Co. No. 3 Wright, NW NE NE section 32-7-6, had Boggy sand at 2,914-37 feet, total depth 2,951 feet, plugged back to 2,937 feet, was shot and swabbed 140 bbls. of oil in 24 hours.

I. T. Troup No. 3 Wright, SW NE NE section 32-7-6, was shot and flowed 414 bbls. of oil in 24 hours from Boggy sand at 2,922-59 feet, total depth.

Sinclair Prairie Oil Co. No. 1 Yarhola, SE SE NE section 29-10-8, topped Dolomite at 4,243 feet, total depth 4,262 feet, was acidized, swabbed 179 bbls. of oil gross in 48 hours, later swabbed 30 bbls. of oil and 22 bbls. of water in eight hours.

Mid-Continent Petroleum Corp. No. 18 Smith, SW SW NE section 5-7-7, an old well, was deepened from 3,212 feet to second Cromwell sand at 3,268-74 feet, total depth, and pumped 90 bbls. of oil in 24 hours, with 50 bbls. of water from first Cromwell sand at 3,185-3,233 feet, recompleted.

Pure Oil Co. No. 12 Reed, NW SW SE section 14-8-6, an old well in the Bowlegs district, was deepened from 4,254 feet to 4,294 feet, was shot and pumped 198 bbls. of oil in 24 hours, recompleted. First Wilcox sand was topped at 4,224 feet.

First reports of new activity in Seminole County: Sinclair Prairie Oil Co. No. 2 Rossanna, NW SW SW section 28-10-8, building rig; Kilbourne No. 2 Factor, SW NW SE section 25-5-7, rigging up rotary; Pure Oil

(Continued on Page 288)

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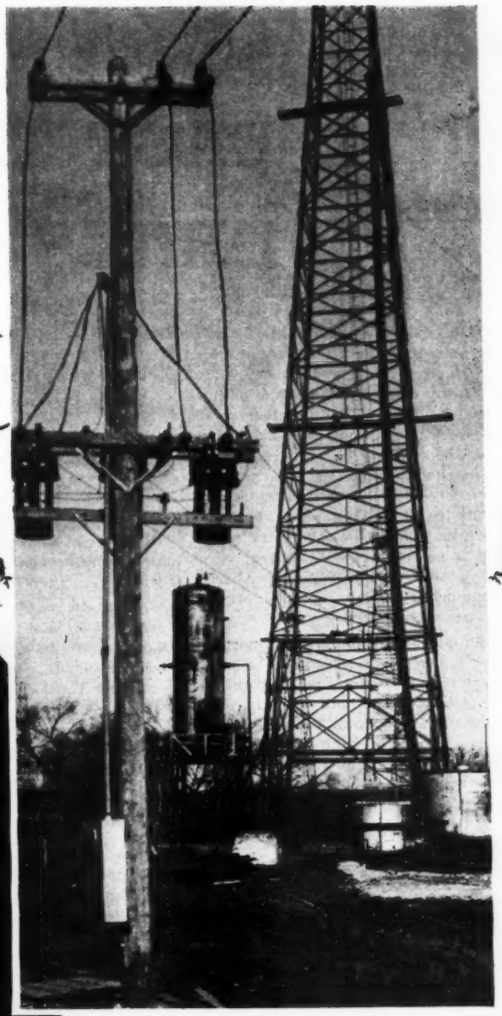

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East and East Central Texas

By
L. E. BREDBERG

EAST TEXAS, 7 YEARS OLD, DRILLS 50 WELLS PER WEEK

DALLAS, Tex., Oct. 4.—Seven years ago the great East Texas field was discovered. It has produced 1,076,434,000 bbls. of oil to date, and no one knows how much more, as many millions of barrels of oil have been illegally produced. It has 23,600 producing wells and about 50 per week are being completed, and around 50 locations staked each week. The average per well allowable is in the neighborhood of 21½ bbls., marginal wells being allowed only 20 bbls. per day, while wells with better potentials are allowed a small percentage of their potential above the marginal well amount.

Oil in the field is now bringing $1.35 per barrel. It has been sold at a posted price of 10 cents per barrel, and even below that price, previous reports stating it sold as low as 2½ cents per barrel.

The field is about 47 miles in length from north to south, covers some 133,000 proven acres, is about 3 miles in width at its narrowest point, at Kilgore, and widens out in hour-glass shape on both ends. It covers parts of five counties, Cherokee, Smith, Rusk, Gregg and Upshur, and is the largest field in the world, and has produced more oil than any other field. It is also the only field in the United States which has been regulated by the militia, the Texas National Guard having been moved into the field in August, 1930, to shut down the wells when the overproduction situation got out of hands of the state regulatory body, the Texas Railroad Commission. It was also the first field in the country in which the federal government posted investigators and officials to check production and interstate shipments of oil, the one important factor in bringing permanent control of the field as this body of men served as a check on other regulatory bodies in the field and practically forced compliance with all regulations posted in the field.

C. M. (Dad) Joiner of Dallas opened the vast field when he brought in his No. 1 Daisy Bradford, about 4 miles northwest of Henderson in Rusk County. It was the third test he had started on the block he held in the area, the first two not having reached the pay when they were junked and abandoned.

Reports on Field

The Texas Railroad Commission has ordered a general well and salt water survey made in the East Texas field, covering the two weeks period from October 1 to 15, the reports to be filed with the commission's engineering office at Kilgore not later than the last date.

The commission has issued forms which are to be filled out on all wells, and which will furnish the following information: Name of operator; well number and name and survey in which well is located; county in which located; elevation of well; top of sand or producing horizon of each well and total depth; status of each well, as to whether it is flowing, pumping, on air or gas lift, or dead; current allowable of each well; daily average production of oil and and water in barrels; per cent of water, together with a statement as to whether or not the well is currently making its allowable.

One of the East Texas operators recently challenged a member of the Railroad Commission at its last hearing at Austin, in regard to checking dead wells in the field, which no doubt is resulting in this comprehensive survey being made of all wells in the field. It was believed that all dead wells or pumping wells were not listed by all operators, other wells on leases being used to make up the production reported for the dead wells, but not made by them. It will be a difficult task to check all such wells but when the survey is completed it should be extremely interesting, especially to supply companies which stand by ready to furnish pumping and other equipment used in artificial lift of the oil where the wells are not flowing.

Twenty commission men have been working on this survey for the past week, but it will take some time for such a small group of men to check all wells under suspicion, or all edge wells.

Wildcatting

E. B. LaRue of Athens and the Phillips Drilling Co. of Pennsylvania are planning on sinking a deep test, probably to the Glen Rose, on a block of some 6,000 acres centering in the Dalrymple Survey about 14 miles south of Athens and 3 miles east of the Athens-Palestine Highway, in southern Henderson County. Others have also been interested in geologizing and core drilling the block.

E. H. Moore, Inc., has spudded in on its Woodbine sand test on lands of the Chronister Lumber Co. in the John Durst Survey, in southern Cherokee County. The company holds a block of 8,000 acres in the area surrounding the location, and the King Drilling Co. of Dallas has contract to drill the test.

Northwestern Houston County is expected to get a couple of tests in the near future, one 1 mile northeast of Augusta and near Liberty Hill. Exact locations have not yet been announced.

Titus Test

One mile north of Winfield, and about 1½ miles east of a previously drilled dry hole, W. McCauley, A. D. Loyd and others have assembled a block of some 4,000 acres for a wildcat test, which will also be about 18 miles southwest of the Talco field, in the western part of Titus County. It will probably be drilled in search of production in the Paluxy sand, member of the Trinity from which production is coming in the Talco field.

Flank Test

The Trinity test of Humble Oil & Refining Co. and Gulf Oil Corp. on the eastern flank of the Gregg County part of the East Texas field, went into the Paluxy sand, member of the Trinity, this week, at a depth of 4,541 feet, elevation checking 272 feet. This Trinity member held nothing but salt water, marking the first discouragement to the owners of the test, which is on the E. Robertson lands, in the M. Mann Survey, about 2½ miles southwest of Longview, and about 2 miles from the field. It is drilling ahead below 4,955 feet with the Glen Rose as its next important objective.

Abandonments

In the past week there were four more abandonments reported in the East Central Texas district, one each for Bowie, Falls, Freestone and Morris County. The Bowie County test was drilled by Chew & Bassett on the B. Barkman farm, in the northeastern part of the county. It was given up at a total depth of 2,881 feet, with an elevation of 312 feet.

The one in Falls County was drilled by E. L. Chapman and others on the S. Grocholsk lands, and was ordered plugged at 5,526 feet. It has been standing shut down for a long time.

Holt and others abandoned their Freestone County test on the W. H. Chambers lands, in the W. D. Allison Survey, about 2¾ miles north of Keechi. Total depth was 6,195 feet and elevation 426 feet.

The Morris County test was given up at a total depth of 4,502 feet, elevation 315 feet. It was drilled by the Joiner Oil Corp. and others on the Morris Sheppard lands, 3 miles northwest of Naples.

Salt Water Disposal

The Magnolia Petroleum Co. abandoned No. 12 Mainard, A. Singleton Survey, on the south edge of the central part of the Talco field this week, with the probable intention of using it as a salt water disposal well. Total depth was 4,352 feet, elevation 316 feet. It was acidized with 1,500 gallons and given a small shot to loosen the formation in which to pump salt water. The water will not be pumped into the producing formation, but will be forced to porous formations above it, the casing in the wells serving to prevent the water from getting down into the Paluxy pay horizon.

EAST CENTRAL TEXAS COMPLETIONS

Anderson County

Tide Water and others No. 13 Ware, 4,103 feet, 120 bbls. in 24 hours through one-eighth inch choke.

Bowie County

Chew and Bassett No. 1 B. Barkman, dry and abandoned 2,881 feet, elevation 312 feet, northeast part of county.

Falls County

Chapman and others No. 1 S. Grocholski, dry and abandoned 5,526 feet.

Franklin County

Humble Oil & Refining Co. No. 2 Prince, 4,243-4,312 feet, 368 bbls. on pump. Magnolia Petroleum Co. No. 9 Owings, 4,205-98 feet, 359 bbls. per day. Stroube and Stroube No. 2 Hedrick, 4,255-4,300 feet, 372 bbls. in 16 hours. Texas Co. No. 5 Barker, 4,201-72 feet, 130 bbls. on pump.

Freestone County

Holt and others No. 1 Chambers, dry and abandoned 6,195 feet, elevation 426 feet, 3 miles north of Keechi.

Henderson County

J. A. Worsham No. 4 Wathen, 4,078-91 feet, 160 bbls. through one-eighth inch choke.

Morris County

Joiner Oil Co. and others No. 1 Sheppard, dry and abandoned 4,502 feet, elevation 315 feet, 3 miles northwest of Naples.

Titus County

G. M. & W. Oil Co. No. 6 Edwards and others, 4,220-4,312 feet, 15 bbls. per hour on pump. Housh and others No. 4 Blackburn, 4,244-4,300 feet, 20 bbls. per hour on pump. Humble Oil & Refining Co. No. 5 Fry, 4,215-4,300 feet, 239 bbls. on pump. Lucey Petroleum Co. No. 5 Williams, 4,249-98 feet, 433 bbls. Magnolia Petroleum Co. No. 12 Mainard, 4,352 feet, acidized 1,500 gallons and shot, using well as salt water disposal well, elevation 316 feet. Tysco Production Co. No. 2 Edwards, 4,260-85 feet, 270 bbls. on pump.

Gregg County

Atlantic Refining Co. No. 88-A Judge, 3,502-3,633 feet, 65 bbls. per hour; No. 30 Turner, 3,582-3,740 feet, 53 bbls. per hour; No. 9-C Barnwell, 3,480-3,550 feet, 119 bbls. per hour. Bond and Dillard No. 10 Meyer, 3,550-80 feet, 60 bbls. per hour. Deep Rock Oil Co. No. 17 Jones, 3,590-3,618 feet, 20 bbls. in 15 minutes. F. H. E. Oil Co. No. 21 Christian, 3,590-3,634 feet, 21 bbls. in 20 minutes. General Crude Oil Co. No. 13 Barnwell, 3,496-3,501 feet, 62 bbls. per hour. Humble Oil & Refining Co. No. 18 Hughes, 3,608-16 feet, 45 bbls. per hour. E. L. Smith Oil Co. No. 4 Harrison, 3,525-67 feet, 40 bbls. in 30 minutes. Stanolind Oil & Gas Co. No. 28-B Lathrop, 3,597-3,612 feet, 40 bbls. per hour; No. 13-B Smith, 3,478-3,510 feet, 59 bbls. per hour. Tide Water Associated No. 17 Tuttle, 3,545-70 feet, 10 bbls. in 10 minutes. M. W. McVey No. 2 Alford, 3,523-37 feet, 30 bbls. in 30 minutes. Magnolia Petroleum Co. No. 8 King, 3,660-61 feet, 20 bbls. in 20 minutes. Perot Oil Co. No. 8 McNeely, 3,618-20 feet, 30 bbls. in 40 minutes. Sinclair Prairie Oil Co. No. 9 Thomas,

(Continued on Page 298)

California Field Report

By
L. P. STOCKMAN

CALIFORNIA PRODUCTION IN OCTOBER THREATENS A RISE

LOS ANGELES, Calif., Oct. 4.—The Central Committee of California Oil Producers adopted the indicated market demand for production recommended by the Bureau of Mines, and California's daily oil quota for the month of October has been set at 660,000 bbls. This is an increase of 21,800 bbls. per day over the allowable for September. The increase recommended reflects substantial shipments of refined oil to the Atlantic seaboard for domestic consumption and crude and refined oil to foreign ports, principally to Japan and the Orient. Shipments to China have shown a substantial decline during the past several months, but the movement to Japan has shown a consistent gain. Actual production for the month of September was approximately 40,000 bbls. per day in excess of the established quota and in view of the excess that has prevailed all year a similar situation may be anticipated during October, in which event actual production may exceed 700,000 bbls. per day. The increased allowable fixed for the month of October confirms the expectation that California's crude oil production during 1937 will exceed 200,000,000 bbls. annually and show a substantial increase over the 214,773,315 bbls. produced during 1936. It is interesting to note, however, that in spite of increased production, the state's stocks have been consistently reduced during the first nine months of 1937.

Completions during the past few weeks have been somewhat lower than heretofore due to a smaller amount of development under way in the Wilmington field, but are expected to bound up again within a few weeks. The northwest end of the El Segundo field is the hottest area in the state and the number of new leases taken recently indicates increased drilling in the immediate area. The Long Beach Harbor Commissioners, after delaying more than three months, are expected to lift drilling restrictions in the Long Beach section of the Wilmington field within the next fortnight and development work will get under way at the expiration of the prescribed 30-day statutory period. Preparations were completed by operators 30 days ago. Operators are maintaining an aggressive development program in other fields, and as a consequence, drilling operations in 1937 will greatly exceed those of all years since 1930.

Kettleman Hills

Superior Oil Co. is making good progress with its deep Eocene test in the Kettleman North dome field and should reach the pay within another few weeks, as the bit is at present going ahead at 9,300 feet. The oil sand is expected at approximately 10,000 feet. Kettleman North Dome Association's deep test, No. 4-18-J in section 18-21-17, which proved the existence of substantial production in rocks of Eocene age, is rotating ahead at 11,220 feet but has not logged anything resembling production since passing through the oil sand found in the uppermost member of the Eocene. Standard Oil Co. is rigging up at No. 27-21-J in section 21-21-17, and present plans call for this well to be carried down into the Eocene. Operators are watching Superior Oil Co.'s deep test because if it results in substantial production an aggressive drilling campaign by Superior Oil Co., Union Oil Co., Standard Oil Co. and Kettleman North Dome Association is expected. This work would greatly stimulate production of the Kettleman North dome field and it could easily make it the dominating factor in state production.

There is no outstanding field in the state at the present time as far as production is concerned, although Wilmington with a potential daily production exceeding 120,000 bbls. is near the top of the list. Wilmington has just about reached its maximum potential, however, but will decline slowly as drilling operations in the Long Beach section of the field will arrest the decline later in the year and cause the potential to ascend again due to comparatively small withdrawals. The Kettleman North dome field, due to its uniformly large production and location of fee owned acreage with respect to holdings of Standard Oil Co. and Kettleman North Dome Association, (Kenda) will present a serious problem if the Eocene proves highly productive, as past experience indicates that some operators will refuse to conform with established allowables. Due to the depth at which production is expected to be found, however, Kettleman North dome can not exert any great effect on state production until next summer, at the earliest. By that time Wilmington will have reached the top and be headed for lower levels, although it will still be a factor of importance due to the substantial thickness of oil sand present in many wells. In the Kettleman Middle dome field, Temblor Oil Co. is rotating ahead in a hard shale at 8,280 feet after encountering some promising looking showings in the top of the Temblor.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	—September 23—		—September 16—			
Intercoastal-domestic:	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	68,038	.....
Diesel and gas oil	.....	.....	.....	.....	176,726	151,541
Gasoline	203,311	29,044	115,945	16,564	3,145,537	4,987,525
Kerosene	.....	.....	.....	.....	328,907	968,157
Foreign exports:						
Crude oil	449,347	64,192	129,211	18,459	10,516,317	7,110,406
Fuel oil	454,779	64,968	61,987	8,855	10,345,111	7,753,742
Diesel and gas oil	35,920	5,131	120,412	17,202	5,803,243	4,222,153
Gasoline	214,879	30,697	.....	.....	6,277,297	5,491,572
Kerosene	54,609	7,801	.....	.....	1,644,071	1,146,338
Lubricants	12,984	1,855	.....	.....	12,984	.....
Other unfinished oil	60,959	8,708	.....	.....	910,122	132,908
Coastwise-domestic:						
Crude oil	158,762	22,680	183,798	26,257	3,745,818	4,860,458
Fuel oil	258,141	36,592	478,058	68,294	11,436,611	7,546,410
Diesel and gas oil	23,461	3,352	24,101	3,443	1,724,142	867,958
Gasoline	353,049	50,436	255,345	36,478	11,484,251	9,273,301
Kerosene	.....	.....	36,218	5,174	308,619	138,814

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic:						
Diesel and gas oil	.....	.....	.....	.....	152,932	.....
Gasoline	.....	.....	.....	.....	25,778	227,419
Kerosene	72,750	10,393	.....	.....	72,750	.....
Asphalt	.....	.....	73,368	10,481	351,394	267,431
Lubricants	.....	.....	3,050	436	25,522	38,131
Foreign exports:						
Crude oil	279,169	39,896	.....	.....	2,236,637	2,325,466
Fuel oil	.....	.....	36,582	5,226	1,613,624	2,054,397
Diesel and gas oil	86,685	12,383	131,271	18,753	2,457,484	1,398,641
Gasoline	245,909	36,573	112,945	16,135	3,991,162	2,760,325
Kerosene	78,630	11,233	17,187	2,455	778,893	546,419
Lubricants	30,057	4,294	.....	.....	455,797	268,440
Other unfinished oil	.....	.....	.....	.....	.....	90,923
Coastwise-domestic:						
Fuel oil	102,580	14,654	107,268	15,324	4,809,354	4,934,748
Diesel and gas oil	52,984	7,569	34,629	4,947	933,756	515,382
Gasoline	106,127	15,161	135,772	19,396	3,848,003	3,686,365
Kerosene	36,124	5,161	.....	.....	224,946	141,580

Wilmington

Standard Oil Co., which has announced its intention of providing pipe line facilities for operators in the Wilmington field of Los Angeles Basin, has not yet begun actual construction of its projected pipe line but will probably do so within another week, as rights of way have already been secured and are being recorded as a matter of record. As a result of this new outlet, Wilmington operators will be able to dispose of their current curtailed production at the highest posted price, as Standard will post a minimum price of 75 cents per barrel. In accordance with Standard Oil Co.'s new contracts, operators will be obliged to pledge themselves to effect a curtailment of 30 per cent of their potential production. This move will have a very stabilizing effect on production and will at the same time prove mutually beneficial because it will enhance proration and at the same time provide operators with a legitimate market for curtailed production at regular posted prices. Up to the present time, many producers have been selling production to any one who drove up to the lease tanks and deposited sufficient "cash on the barrel head," but this arrangement has not proven very satisfactory because of infrequent deliveries and low competitive prices. Union Oil Co. has not yet announced its intention of laying a new pipe line into the Wilmington field but is expected to do so in the immediate future. Standard's new pipe line, which will be 8 inches in diameter, will extend from Wilmington to Hynes, a distance of about 15 miles, and will tie into existing facilities. Numerous attempts have been made to effect curtailment in the Wilmington field, but operators have invariably refused to sign on the dotted line because no definite program has heretofore been sponsored that provided for the laying of pipe line facilities. The announcement that Standard Oil Co. would provide pipe line facilities was received with considerable approval and a number of operators have already signed the necessary sales contracts.

Round Mountain

In the Coffee Canyon section of the Round Mountain field of Kern County, H. A. McDonald completed No. 1 Larkin in section 12-28-28, pumping 520 bbls. of clean 15.2-gravity oil daily from 1,951 feet. This well is of special interest because it may have discovered a new productive area approximating 300 acres northwest of California Western Oil Co.'s production in section 12-28-28. These two areas appear to be separated by a fault. California Western Oil Co.'s well No. 5 in section 12-28-28 has been completed flowing 414 bbls. of clean 15.1 gravity oil per day from 1,966 feet after the hole had been finished with 57 feet of 6⅝-inch liner including 35 feet of 80-mesh screen. In the area recently proved productive east of the older section of the Round Mountain field, Eastmont Oil Co. has completed No. 4 Olcese in section 16-28-29 pumping 148 bbls. of 17.3-gravity oil daily from 1,750 feet. In the older section of the Round Mountain field, Honolulu Oil Corp. completed No. 15 in section 20-28-29, pumping 60 bbls. of 21.5-gravity oil per day from 1,858 feet. It is the smallest well finished by this company in several months. Shell Oil Co. No. 15 Freeman in section 20-28-29 bottomed at 1,860 feet and finished with 63 feet of 6⅝-inch liner including 40 feet of perforated was brought in pumping 915 bbls. of comparatively clean 15.8-gravity oil per day.

New Wells

Seven new wells were completed in the Wilmington field during the current week, but none of them

STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.

Crude oil prices at the well effective June 22, 1936

Gravity	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Dominguez	Elwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Buena Vista Hills Midway-Sunset Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Santa Paula*	Orcutt*
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	....	....	....	$.80	$.76	$.76	$.77	$.78	....	....	$.70	$.70	$.70	....	....	$.70	....
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.70	....
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.71	.70
18-18.9	.80	.79	.74	.78	.84	.80	.78	....	....	....	.82	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.73	.72
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	....	.85	.76	.78	.77	.78	....	$.70	.74	.74	.71	$.76	....	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	....	.88	.78	.82	.77	.80	....	.70	.78	.78	.72	.70	....	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	....	....	....	.91	.80	.85	.77	.84	$.78	.73	.82	.82	.74	.70	....	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	....	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	....	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	....	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	....	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	....	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	....	.87	.88
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	....	1.02	.95	....	.89	.99	.86	.88	1.01	.98	.90	.83	....	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	....	1.05	.98	....	.92	1.03	.90	.91	1.06	1.02	....	....	....	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	....	1.02	....	.96	1.06	.95	.95	1.10	1.06	....	....	....	.95	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	....	1.06	....	.99	1.10	.99	.99	1.15	1.10	....	....	....	.97	....
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	....	....	1.09	....	1.03	1.14	1.03	1.02	1.20	1.14	....	....	....	.99	....
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	....	....	....	1.07	1.17	1.08	1.06	1.25	1.18	....	....	....	1.01	....
31-31.9	....	....	....	....	1.24	Pipe	1.24	1.22	.97	Ship	....	....	....	1.11	1.21	1.12	1.09	1.29	....	....	....	....	....	....
32-32.9	....	....	....	....	1.27	Line	1.27	1.27	1.00	....	....	....	....	1.14	1.25	1.16	1.13	1.34	....	....	....	....	....	....
33-33.9	....	....	....	....	....	....	....	1.32	....	$1.28	....	....	....	1.18	1.28	1.20	1.17	1.38	....	....	....	$1.19	....	....
34-34.9	....	....	....	....	....	....	....	1.37	....	1.32	....	....	....	1.22	1.32	1.25	1.20	....	....	....	....	1.23	....	....
35-35.9	....	....	....	....	....	....	....	1.42	....	1.35	....	....	....	1.25	....	1.29	....	....	....	....	....	1.27	....	....
36-36.9	....	....	....	....	....	....	....	1.46	....	1.39	....	....	....	1.29	....	1.33	....	....	....	....	....	1.31	....	....
37-37.9	....	....	....	....	....	....	....	1.51	....	1.43	....	....	....	1.32	....	1.37	....	....	....	....	....	1.35	....	....
38-38.9	....	....	....	....	....	....	....	1.56	....	....	....	....	....	1.36	....	1.42	....	....	....	....	....	1.39	....	....
39-39.9	....	....	....	....	....	....	....	1.61	....	....	....	....	....	1.40	....	....	....	....	....	....	....	1.43	....	....
40-40.9	....	....	....	....	....	....	....	1.66	....	....	....	....	....	1.43	....	....	....	....	....	....	....	....	....	....

Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over.

registered substantial production. It has become quite evident within the past fortnight that wells located in the town lot area west of Ford Avenue due to intensive development can not be expected to yield large wells, but that the area south of Anaheim Road and east of Ford Avenue should continue to yield new wells with relatively large initials. This will be found especially true of Terminal Island and other adjacent territory when existing drilling restrictions are lifted. The northern and western limits of production have been determined but the eastern and southern boundaries remain to be determined.

General Petroleum Corp. completed No. 17 Ford flowing 939 bbls. of clean 29.1-gravity oil per day from 5,440 feet. It was finished with a 6⅝-inch combination string including 536 feet of perforations landed on bottom and cemented through perforations at 4,900 feet. Union Pacific Railroad Co. completed two new producers and should have three more tanking oil within another week or 10 days. The company's new wells were Nos. 22 and 37 brought in flowing 489 bbls. and 148 bbls. per day respectively. No. 22 was bottomed at 3,422 feet but plugged back to 3,377 feet and finished with 417 feet of 6⅝-inch liner including perforations at 2,986-3,256 feet and at 3,276-3,377 feet. This new well is producing clean 20.2-gravity oil under a tubing pressure of 130 pounds and a casing pressure of 610 pounds. No. 37 was bottomed at 3,577 feet but was subsequently plugged back to 3,453 feet.

The Texas Co. completed its first producing well in the Wilmington field when No. 1 Refinery was brought in pumping 145 bbls. of relatively clean 14.5-gravity oil per day from 3,500 feet. It is on the Texas Co.'s refinery property, purchased in fee several years ago. Ring Oil Co. completed No. 5-W flowing 210 bbls. of 17.1-gravity oil per day from 3,615 feet after the hole had been finished with a string of 6⅝-inch carrying 715 feet of perforated landed on bottom and cemented through perforations at 2,900 feet. This well was still building up at last reports and may show a substantial increase in production. Black Gold Oil Co. No. 1 Hancock Banning has been completed flowing 245 bbls. of relatively clean 17.8-gravity oil per day from 3,583 feet after the hole had been finished with 1,047 feet of 8⅝-inch liner including perforations at 2,900-3,149 feet and at 3,181-3,583 feet. Bankline Oil Co. No. 3 Classification Yards was completed early in the week pumping 230 bbls. of 17.2-gravity oil cutting 5 per cent daily from 3,487 feet. This well was finished with 316 feet of 6⅝-inch liner including 311 feet of perforated landed at 3,485 feet.

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Mountain View

In the Mountain View field of Kern County General Petroleum Corp. completed No. 2 Freeport in section 19-30-29, flowing 497 bbls. of clean 25.4-gravity oil from the upper zone at 4,760 feet. It was brought in flowing through a three-fourths inch bean and was finished with a 6⅝-inch liner landed on bottom. Barnsdall Oil Co. No. 2 Nighbert in section 19-30-29, was good for 105 bbls. of clean 23.1-gravity oil per day on the beam following completion at 4,840 feet. Hogan Petroleum Co., the first concern to develop commercial production in the Mountain View field, has completed No. 4 Symons in section 4-31-29, pumping 115 bbls. of clean 26.3-gravity oil daily from 6,188 feet after the hole had been plugged back from 6,557 feet. Drilling operations appear to be centered in the eastern end of the structure and indications point to additional development.

Midway-Sunset

In the Midway-Sunset field of Kern County, Hallmark Oil Co. completed No. 7 in section 25-12-24 pumping 590 bbls. of clean 25.1-gravity oil daily from 2,790 feet, after the hole had been drilled to 2,992 feet and plugged back because of bottom water. The crew transferred to No. 8 in the same section. Chanslor Canfield Midway Oil Co. No. 43 in section 21-32-23 has been completed, pumping 143 bbls. of 14.5-gravity oil cutting 7 per cent per day from 2,300 feet. It was originally carried down to 2,716 feet where bottom water was encountered. The rather large cut probably reflects an inefficient plugging job as wells in this location normally show cuts below 3 per cent. The well was finished with 343 feet of 8⅝-inch liner including 338 feet of perforated. In section 23-32-24 Standard Oil Co. completed No. 37-23-D pumping 290 bbls. of oil and 100 bbls. of water per day from 3413 feet, finished with 38 feet of 6⅝-inch liner including 35 feet of perforated.

Mount Poso

In the new productive area north of the northern tip of the Mount Poso field of Kern County, Ring Oil Co. completed No. 2 Blackfoot in section 32-26-28, pumping 224 bbls. of clean 16.5-gravity oil daily from 1,805 feet after the hole had been finished with 60 feet of 6⅝-inch liner including 44 feet of 140-mesh screen landed on bottom. D. G. Vedder's No. 1 B. N. B. in section 32-26-28 was completed pumping 348 bbls. of clean 16.1-gravity oil per day from 1,691 feet and should hold up as it has 50 feet of rich oil sand. Vedder Petroleum Co. No. 29-2 Lambert in section 29-26-28 was completed pumping 102 bbls. of 15.8-gravity oil per day from 1,807 feet but No. 29-3 Lambert was abandoned as dry at 1,863 feet and location staked for No. 29-4 Lambert has also been abandoned. Sunset Oil Co. which recently acquired the Bowles property in section 21-26-28 concluded drilling on No. 3 at 1,569 feet and should have it ready for a production test shortly. Location has been staked for No. 4 Bowles and will be spudded immediately upon com-

(Continued on Page 288)

Kansas Developments

By
DAL DALRYMPLE

OPEN NEW AREAS IN BARTON AND ELLIS; BIG OTIS OIL WELL

Barton and Ellis counties held attention of Kansas oil men the past week with new discoveries and extension wells, but other sections of the state were not without interest. Russell County, with 15 new producers, set the pace in number of completions. Stafford County, rapidly gaining recognition as an important oil sector, offered four new wildcats as its contribution to the week's news. Rush County provided a big oil and gas well, and Rice and Cowley counties registered big producers.

Shell Petroleum Corp. No. 1 Peterman, SE NE SE section 13-16-14w, an interesting outpost in Barton County, was due to test after drilling plugs in 4¾-inch casing set at 3,340 feet. It was bottomed at 3,366 feet in Siliceous lime, topped at 3,341 feet. Nearest production is in the McClanahan or South Trapp area 1¼ miles northeast. The cores were saturated.

Extension of the Stueder pool of Barton County one-half mile northward was indicated at Stanolind Oil & Gas Co. No. 1-B Morrison, SE SE NW section 26-16-13w. It cored saturation in Siliceous lime to 3,403 feet, total depth, and was waiting on cement after setting 7-inch casing. It is about 1 mile northeast of the extension well of the Ainsworth pool, recently completed by the Stanolind company in SW SW SE section 27-16-13w.

New work was being started in the Kraft area of eastern Barton County, following completion of two large producers the previous week. The accompanying map shows new work in this sector.

New Ellis Pool

In Ellis County, Earl F. Wakefield and others No. 1 Burnett, NW NW NE section 1-11-18w, opened a new area about 2½ miles northeast of the Haller pool and some 4 miles northwest of the Bemis field. It filled with 2,600 feet of oil in four hours from Siliceous lime at 3,552-71 feet, total depth. Several extension wells were near completion in the busy Bemis field.

Morgan, Flynn & Cobb and others No. 2 Crowell, SW SW NE section 23-18-16w, in the Otis-Albert oil and gas area of eastern Rush County, produced 50,000,000 feet of gas and flowed at the rate of 120 bbls. of oil an hour to rate as the largest oil well in the field. It was bottomed at 3,555 feet. This is the fifteenth oil producer in the field.

The following new wildcats in Stafford County were reported: Torry & Feaster No. 1 Allen, NW SE section 34-22-12w; Fred Rust No. 1 Drach, NE SW section 12-22-13w; Colonial Oil Co. and others No. 1 Scheuffler, SW SE section 5-21-11w, and Kessler Oil & Gas Co. and others No. 1 Pinkston, NE NW section 17-22-14w.

Wildcat Completions

Five Kansas wildcats failed to find productive sands and were dry and abandoned the past week.

F. L. Thorn and associates No. 1 Koeppen (Dix), SE SE SW section 31-14-24w, Trego County, topped Conglomerate at 4,177 feet, Viola lime 4,293 feet, Siliceous lime 4,405 feet, had a hole full of water at 4,423-29 feet, total depth, and was abandoned.

Rex & Morris and others No. 1 Stephens, SW SW SE section 35-23-3e, Butler County, had Mississippi lime at 2,531 feet, a hole full of water at 2,692-96 feet, total depth, and was abandoned.

H. C. Becker and associates No. 1 Mason, SW SW NE section 9-17-1w, McPherson County, topped Simpson zone at 3,282 feet, had Siliceous lime at 3,357-3,470 feet, total depth, nothing was showing and it was dry and abandoned.

Palmer Oil Corp. No. 1 Royal, NE cor. section 15-28-1w, Sedgwick County, found Chat at 3,396 feet, Mississippi lime 3,430 feet, Siliceous lime 3,856 feet, and was dry and abandoned at 3,899 feet, total depth.

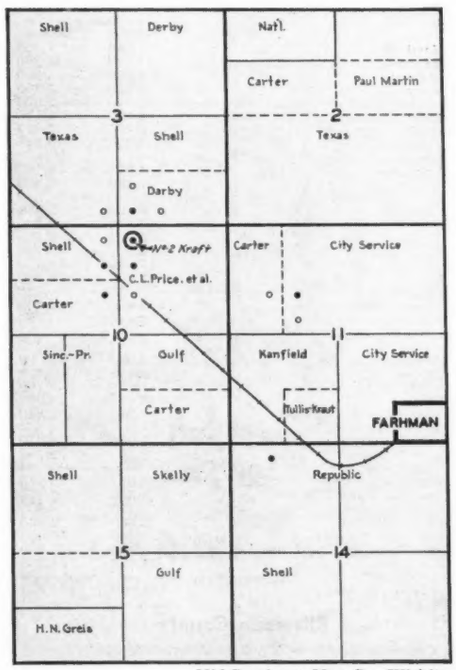
Kessler Oil & Gas Co. No. 1 Jenkins, SE SE NE section 15-25-12w, Stafford County, had Siliceous lime at 4,195-4,214 feet, total depth, nothing was showing and it was dry and abandoned.

Russell County

With 15 producing wells completed the past week, Russell County set a fast pace for Kansas. Russell completions, including a failure, were:

W. I. Southern, Inc., No. 1 Trapp, NW NW NE section 29-15-13w, Trapp field, Siliceous lime 3,313-17 feet, total depth, acidized, pumped 178 bbls. of oil the first four hours, potential 1,008 bbls. Same operator's No. 11 Boomhower A, SE NW NE section 30-15-13w, Siliceous lime 3,249 feet, total depth 3,256 feet, acidized, pumped 407 bbls. of oil the first four hours, potential 2,440 bbls.

Phillips Petroleum Co. No. 16 Hoffman, SE cor. section 31-15-13w, Siliceous lime 3,342 feet, total depth



Mid-Continent Map Co., Wichita

Several new tests were started in the Kraft area, sections 3, 10 and 11-17-11w, Barton County, as result of recent completion of big wells

3,361 feet, acidized, pumped 538 bbls. of oil in four hours, potential 3,232 bbls.

Cities Service Oil Co. and others No. 4 Bender A, NE SE NW section 25-15-14w, Siliceous lime 3,328 feet, total depth 3,332 feet, acidized, potential 1,493 bbls. of oil. Same company's No. 13 Boomhower, NE SW NE section 25-15-14w, Siliceous lime 3,328-3,332 feet, total depth, acidized, potential 1,522 bbls. of oil. Same company's No. 14 Boomhower, SW SW NE section 25-15-14w, Siliceous lime 3,326-28 feet, total depth, acidized, potential 545 bbls. of oil. Same company's No. 1 Rogg, SE SE NE section 27-14-13w, pay 2,857-67 feet, total depth, acidized, pumped 464 bbls. of oil in four hours, potential 2,784 bbls.

Stearns & Streeter No. 6 Miller, SW SE NW section 31-14-13w, Gorham sand 3,127-31 feet, total depth, potential 764 bbls. of oil.

Texas Co. No. 3 Brandenburg, SW NW NW section 20-14-14w, Kansas City lime 2,998 feet, total depth 3,014 feet, acidized, potential 1,912 bbls.

Alva Billings No. 3 Herbel A, NE SE NW section 35-14-14w, Gorham sand 3,186-89 feet, total depth, hole full of water, abandoned. Same operator's No. 4 Herbel A, SE SE NW section 35-14-14w, abandoned location.

Hartman & Blair No. 10 Rouback, SW NW NW section 2-14-15w, Gorham sand 3,296-3,300 feet, total depth, potential 1,950 bbls. of oil.

Central Petroleum Co. No. 11 Foster B, SW NE NE section 3-14-15w, Gorham sand 3,310 feet, total depth 3,315 feet, pumped 378 bbls. of oil in four hours, potential 2,268 bbls.

A. H. Witt No. 4-B Witt, NE NE SE section 3-14-15w, Gorham sand 3,300-01 feet, total depth, plugged back to 2,900 feet, shot, potential 2,237 bbls. of oil.

Transwestern Oil Co. No. 9 William Polcyn, SW SE SW section 11-14-15w, Gorham sand 3,216-21 feet, total depth, pumped 123 bbls. of oil in four hours, potential 739 bbls.

National Refining Co. No. 3 Reinhardt C, NE SE SE section 25-14-15w, Gorham sand 3,196-3,208 feet, total depth, acidized, potential 850 bbls. of oil.

Skelly Oil Co. No. 3 Rein, Jr., SE NE SW section 8-15-13w, total depth 3,172 feet, pumped 367 bbls. of oil in four hours, acidized, potential 2,382 bbls.

Three new operations were reported in Russell County. Coralena Oil Co. No. 6 Hank Sellens, NW cor. section 30-15-13w, was a rig. Polk & Fortson No. 3 Meyers, SE NW SE section 16-16-12w, was a rig. A. H. Witt No. 1 Baier, SE SW SE section 34-15-13w, was a rig.

Barton County

Indian Territory Illuminating Oil Co. No. 6 Peter, SW SW NW section 24-20-11w, Peter pool, Barton County, found Siliceous lime at 3,253 feet, was bottomed at 3,265 feet, made potential of 2,279 bbls. of oil and was completed.

Magnolia Petroleum Co. No. 13 Roetzel, NE SW SE section 24-20-11w, swabbed 16 bbls. of oil in 12 hours, was acidized and made potential of 1,432 bbls. of oil from Siliceous lime topped at 3,248 feet, total depth 3,269 feet.

Indian Territory Illuminating Oil Co. No. 3 Schrepel A, SE NE NE section 26-20-11w, topped Siliceous lime at 3,260 feet, total depth 3,290 feet, swabbed 289 bbls. of oil in eight hours, acidized, pumped 360 bbls. of oil in four hours, potential 2,101 bbls.

T. C. Johnson No. 1 Bitter, NW NW SW section 8-16-13w, east offset to the discovery well in the McClanahan extension of the Trapp field, topped Siliceous lime at 3,360 feet, total depth 3,371 feet, pumped 470 bbls. of oil in six hours and on potential test pumped 237 bbls. of oil the first four hours, making potential of 1,425 bbls.

Ohio Oil Co. No. 2 Kramer, C W half W half SE section 9-16-13w, Susank pool, found Siliceous lime at 3,386 feet, total depth 3,393 feet, acidized and made potential of 1,013 bbls. of oil.

New work in Barton County: Phillips Petroleum Co. No. 3 Bitter, NW NW NE section 6-16-13w, rig; Stanolind Oil & Gas Co. No. 2 Morrison A, SE SE SW section 27-16-13w, location; same company's No. 1 Thorne B, SE cor. section 27-16-13w, rig; Continental Oil Co. No. 8 Ainsworth A, NE cor. section 33-16-13w, location; same company's No. 9 Riemann, NE NW NW section 34-16-13w, location; Martin & Foraker and others No. 1 Dick Estate, NE SW SW section 31-19-11w, wildcat, rig; Carter Oil Co. No. 1 Dennis Hogan, NE SW NW section 11-17-11w, rig; Stanolind Oil & Gas Co. No. 1 Lena Knop B, NW NW SE section 32-19-11w, rig; same company's No. 3 Burmeister, SE SE NE section 35-19-11w, rig; same company's No. 2 Zugg, NW NW NE section

34-16-13w, rig; Shell Petroleum Corp. No. 1 Schneider A, NW NW NE section 2-16-14w, location; Stanolind Oil & Gas Co. No. 2 Dick, NE SE SW section 2-20-11w, rig; same company's No. 3 Panning, SE cor. section 2-20-11w, rig; same company's No. 4 Panning, NW NW SE section 2-20-11w, rig; same company's No. 5 Panning, SW NW SE section 2-20-11w, location; same company's No. 4 Kowalsky, SW SW NE section 11-20-11w, rig; Indian Territory Illuminating Oil Co. No. 1 A. Bryant, NE NE SE section 23-20-11w, location; same operator's No. 4 Schrepel A, NE cor. section 26-20-11w, location.

Ellis County

Ryan Consolidated Corp. No. 4 Bemis A, NW NE NW section 22-11-17w, Bemis field, Ellis County, found Siliceous lime at 3,423 feet, total depth 3,430 feet, and made potential of 2,380 bbls. of oil.

Same company's No. 6 Bemis A, SE NE NW section 22-11-17w, had Siliceous lime at 3,450-57 feet, total depth, and made potential of 2,653 bbls. of oil.

Magnolia Petroleum Co. No. 3 Johansen, SW SW NE section 22-11-17w, was acidized and made potential of 2,441 bbls. of oil from Siliceous lime topped at 3,428 feet, total depth 3,438 feet.

L. H. Wentz No. 6 Bemis, NW SE NW section 28-11-17w, found Siliceous lime at 3,462-67 feet, total depth, and made potential of 2,426 bbls. of oil.

Uscan Oil Co. No. 6 Bemis, CSL N half NE section 21-11-17w, topped Siliceous lime at 3,362 feet, total depth 3,385 feet, plugged back to 3,381 feet, was acidized and pumped 15 bbls. of oil daily.

McPherson Drilling Co. No. 1 Bemis, SE SE SW section 33-11-17w, was acidized and swabbed 126 bbls. of oil in three hours, making potential of 1,126 bbls. from Siliceous lime topped at 3,613 feet, total depth 3,623 feet.

Carter Oil Co. No. 2 Koerner, NE NW SE section 11-12-18w, found Siliceous lime at 3,665½ feet, was bottomed at 3,673 feet, pumped 227 bbls. of oil in six hours, acidized, potential 2,119 bbls.

Blackwell Oil & Gas Co. No. 1 Richmond, SW SE SE section 15-11-17w, topped Siliceous lime at 3,397 feet, total depth 3,416 feet, acidized, swabbed 92 bbls. of oil in two hours after a head, potential 1,194 bbls.

Cities Service Oil Co. No. 11 Bemis, NW SW SE section 21-11-17w, found Siliceous lime at 3,367 feet, total depth 3,376 feet, and made potential of 2,172 bbls.

Four new operations in Ellis County were reported as follows: Magnolia Petroleum Co. No. 5 Johansen, NE SW NE section 22-11-17w, location; Deep Rock Oil Corp. No. 22 Baumer, NW SW NE section 27-11-17w, location; same company's No. 23 Baumer, SE NE NE section 27-11-17w, location; Carter Oil Co. No. 1 Karlin, NE NE NW section 1-12-18w, rig.

Rice County

Completions of the week in Rice County included six producers and one failure.

Continental Oil Co. No. 3 Ainsworth A, SE SW NW section 30-18-7w, Geneseo district, found Silicous lime at 3,160 feet, total depth 3,210 feet, acidized, pumped 294 bbls. of oil in four hours and made potential of 1,747 bbls.

Darby Petroleum Corp. No. 1 Oden, NE cor. section 6-21-7w, Saxman area, set 7-inch casing at 3,321 feet, was bottomed at 3,343 feet, flowed 521 bbls. of oil the first four hours and made potential of 2,868 bbls.

Saco Oil Co. No. 1 Wickerham, NE SW SE section 7-20-9w, had Siliceous lime at 3,298-3,340 feet, total depth, and was dry and abandoned.

Stanolind Oil & Gas Co. No. 3 Hathaway, NE NW SW section 33-19-10w, Silica sector, had Siliceous lime at 3,281-86 feet, total depth, was acidized, swabbed 122 bbls. of oil in two hours, potential 2,299 bbls. Same company's No. 7 Panning, SW SE NW section 33-19-10w, topped Siliceous lime at 3,280 feet, total depth 3,292 feet, acidized and made potential of 2,408 bbls. of oil.

Texas Co. and others No. 6 Schartz, NW SW SE section 33-19-10w, set 7-inch casing at 3,312 feet, total depth 3,321 feet, swabbed 170 bbls. of oil in two and one-half hours, acidized and made potential of 2,518 bbls.

Continental Oil Co. No. 1 Gum, NW SW SE section 34-19-10w, found Siliceous lime at 3,308 feet, total depth 3,315 feet, and made potential of 756 bbls. of oil.

Sunflower Oil Co. No. 4 Stange, NW SE NW section 16-21-7w, was an abandoned location.

New work in Rice County: Continental Oil Co. and others No. 2 Michekis, SE NE SW section 12-18-8w, rig; C. L. Carlock and others No. 1 Deweese, SE SW NW section 32-20-7w, rig; Saco Oil Co. and others No. 4 Wickerham A, SE cor. section 7-20-9w, drilling ahead; L. E. Douglass Oil & Gas Co. and others No. 15 Theede, NE SE SW section 9-21-7w, rig; Continental Oil Co. No. 1 Engelland, NE cor. section 12-21-7w, location; Stanolind Oil & Gas Co. No. 5 Hathaway, NE NE SW section 33-19-10w, rig; some company's No. 6 Hathaway, 792 feet south and 320 feet west C section 33-19-10w, location.

Stafford County

Stanolind Oil & Gas Co. No. 8 Komarek, NE SE SE section 30-22-11w, Richardson area, Stafford County, swabbed 74 bbls. of oil in two hours, was treated with acid, swabbed 200 bbls. of oil in four hours and made potential of 1,382 bbls. Top of Siliceous lime was 3,523 feet, total depth 3,546 feet.

Same company's No. 2 Spangenberg, NW NW SW section 29-22-11w, had Siliceous lime at 3,562 feet, total depth 3,601 feet, was acidized, swabbed 60 bbls. of oil in two hours and made potential of 615 bbls.

In the St. John area, Stanolind Oil & Gas Co. and Amerada Petroleum Corp. No. 2 Fitzgerald, SE SW SE section 22-24-13w, found Siliceous lime at 4,130 feet, total depth 4,132 feet, plugged back to 4,129 feet, but was dry and abandoned.

Four new operations in Stafford County were reported: Stanolind Oil & Gas Co. No. 11 Komarek, SE NE NE section 30-22-11w, rig; same company's No. 12 Komarek, NW SE SE section 30-22-11w, location; same company's No. 10 Heyen B, SW NW NE section 31-22-11w, location; Stanolind Oil & Gas Co. and others No. 1 Volker, SW SW NE section 23-24-11w, rig.

Estimated Daily Production

Estimated daily production of Kansas for the week ending October 2 and for the preceding week was as follows:

	Barrels	
	Oct. 2	Sept. 25
Oxford City	1,350	1,400
Burrton	14,025	14,200
Ritz-Canton	4,900	4,850
Graber	2,325	2,875
Hollow-Nikkel	2,575	2,625
Lerado	2,000	1,125
Voshell	2,400	2,425
Wellington	3,250	3,225
Ellsworth County:		
Lorraine	4,075	4,150
Other pools	1,420	1,390
Rice-Barton counties:		
Bloomer	4,425	3,850
Chase	7,350	7,925
Geneseo	2,725	2,825
Raymond	1,275	1,400
Silica	15,350	18,475
Keesling	1,000	1,200
Hauschild	750	925
Miscellaneous Rice	8,835	9,800
Miscellaneous Barton	6,440	6,250
Russell County:		
Fairport	2,150	2,025
Gorham	2,080	1,590
Russell	2,775	2,420
Sullivan	8,750	8,790
Trapp	12,425	14,010
Miscellaneous Russell	7,915	7,840
Sedgwick County:		
Valley Center	1,045	1,070
Miscellaneous	2,795	2,720
Ellis County:		
Bemis	5,075	5,150
Miscellaneous	3,500	3,240
Kingman County	375	500
Stafford County	2,655	2,625
Greenwood County	9,960	10,000
Butler County	15,000	15,100
Other fields	21,590	24,030
Total Kansas	184,500	193,025

Ellsworth County

Yoches and others No. 2 Patzner, NW SE NW section 30-17-10w, Bloomer pool, Ellsworth County, had Siliceous lime at 3,331-35 feet, total depth, was acidized, pumped 308 bbls. of oil in the first four hours and made potential of 1,780 bbls.

Phillips Petroleum Co. No. 5 Patzner, NW NE SW section 30-17-10w, was a rig.

Rooks County

Phillips Petroleum Co. No. 1 Maddy, C SE NE section 36-8s-18w, Dopita area, Rooks County, topped Siliceous lime at 3,396 feet, was bottomed at 3,441 feet, plugged back to 3,420 feet, acidized and made potential of 153 bbls. of oil.

Plainstock Oil Co. No. 2 Westhusin, NE NE SE section 11-9s-17w, new Rooks County test, was a rig.

McPherson County

Continental Oil Co. and others No. 4 Huxman, SE SW NW section 29-21-1w, Graber pool, McPherson County, topped Hunton lime at 3,258 feet, total depth 3,303 feet, was acidized and made potential of 598 bbls. of oil.

New activity in McPherson County: E. B. Shawver No. 1 Fletcher A, SW cor. section 16-19-1w, an old well to be deepened, rig; E. B. Shawver and Shell Petroleum Corp. No. 4 Lively, NE SW NW section 21-19-1w, drilling; Continental Oil Co. and others No. 5 Huxman, NW NE NW section 29-21-1w, location; Continental Oil Co. No. 1 Jones A, NE cor. section 31-21-1w, rig.

Trego County

Watchorn Oil & Gas Co. No. 2 Lemke, SE NE SW section 15-11-23w, Wakeeney area, Trego County, had Siliceous lime at 3,962-76 feet, total depth, plugged back to Kansas City lime at 3,480 feet, but was abandoned.

Harvey County

Ohio Oil Co. No. 1 Neufeldt, SE SE NE section 14-22-2w, Sperling area, Harvey County, was dry and abandoned in Siliceous lime at 3,604-10 feet, total depth.

First reports of new work in Harvey County: Derby Oil Co. No. 2 Lehman, SE SW NW section 13-22-2w, location; Allinson and others No. 1 Hawks, SE SW NE section 16-24-1w, wildcat, drilling; E. J. Shaffer and others No. 2 Dreese, SW NE NE section 2-23-2w, drilling; same operators' No. 3 Denno, NE SW SW section 12-23-2w, rig.

Sedgwick County

Continental Oil Co. No. 4 Goodrich, SE NE SW section 16-25-1e, Goodrich area, Sedgwick County, topped Chat at 2,975 feet, total depth 3,334 feet, acidized, pumped 190 bbls. of oil and 18 bbls. of water in the first four hours and 207 bbls. of oil and 19 bbls. of water the next four hours, making potential of 1,143 bbls.

Dickey Oil Co. No. 2 Riley, SW NE SW section 20-28-1e, an old Sedgwick County well, was being deepened.

Butler County

Isador Molk No. 1-A Brown, NE SW NW section 32-26-5e, Eldorado area, Butler County, found Viola lime at 2,654 feet, total depth 2,670 feet, acidized and pumped 71 bbls. of oil in 20 hours.

Four new tests in Butler County were reported. Cities Service Oil Co. No. 29 Lathrop, SW SW NW section 17-23-4, was a rig; National Refining Co. No. 14 Lathrop, CSL N half NW section 17-23-4, location; Phillips Petroleum Co. No. 18 Scully, 1,039 feet north and 288 feet east south quarter corner, section 17-23-4, rig; National Refining Co. No. 3 McCullough, SE NE SW section 1-28-4, location.

Cowley County

Lloyd, Frost & Study and others No. 1 Elder, NW NW NE section 4-32-3e, Weathered area, Cowley County, had Siliceous lime at 3,234-55 feet, total depth, flowed 553 bbls. of oil the first four hours, 556 bbls. the next four hours and made potential of 3,318 bbls.

Earl Wakefield No. 1 Whitson, SW NE SE section 8-32-4, Cowley County wildcat, was a location.

Sumner County

Texas Co. No. 7 Carr, SW SW NE section 5-32-1w, Wellington area, Sumner County, topped Chat at 3,653 feet and was dry and abandoned at 3,758 feet, total depth.

Stelbar Oil Corp. No. 4 Barlow A, SW SE NE section 33-31-1w, was a rig.

Grant County

United Production Co. No. 1 Blackwelder, C NW section 24-29-35w, Grant County, was bottomed at 2,875 feet, plugged back to 2,720 feet, was shot and produced 5,250,000 feet of gas.

Various First Reports

In Chautauqua County: W. D. Dunn and others No. 1 Malone, SE SW NE section 18-32-10, rig; Ingot Oil Co. No. 1 McGee, SW NE SW section 21-32-12, wildcat, drilling; I. W. Siegel No. 1 Templet, SW cor. section 31-32-12, rig.

In Elk County: Veeder Supply & Development Co. No. 4 Douglass, CSL SW NW section 28-28-12, drilling; Elk Petroleum Co. No. 10 Cory, SW SW SE section 9-30-9, drilling.

In Greenwood County, Whittaker & Johnson No. 1 Cannon, CEL SE NW section 8-26-13, wildcat, rig.

In Reno County, Westgate-Greenland and others No. 1 Popp, SW SW NE section 7-25-4w, wildcat, was a rig; Stanolind Oil & Gas Co. and Amerada Petroleum Corp. No. 5 Hilger A, SW NW NW section 16-26-4w, rig.

In Rush County, Carter Oil Co. and others No. 1 Pascoe, 330 feet south and 660 feet east NW cor. section 36-18-16w, location.

In Woodson County: Guy D. Harper Oil Co. No. 8 Figge, CWL SE NE section 28-23-14, drilling; Saco Oil Co. No. 6 Klick, NW SW SW section 20-25-14, rig; C. L. Sheedy and others No. 6 Tipton, NE SE NW section 28-25-14, rig; Oko Oil Co. No. 1 Campbell, 200 feet south and 200 feet east-north quarter corner section 7-24-14, location.

Rocky Mountain Area

By
T. R. INGRAM

IMPORTANT DEEP SAND OIL WELL IN LANCE CREEK POOL

DENVER, Colo., Oct. 4.—The Lance Creek field in Wyoming had an important completion in the deeper pay in the A. B. Cobb-Holly Development Co. No. 2 Novick, on the southwestern edge of the Sundance pool, 4 miles southwest of Ohio Oil Co. No. 5 Leo, the first Minnelusa sand producer. The Cobb-Holly well made 100 bbls. per hour of 42-gravity oil. Ohio Oil Co. opened a small gas field on the Bunker Hill structure in Carbon County in its No. 1 Wyoming Oil & Gas. Sinclair-Wyoming Oil Co.'s deep test on Muskrat dome had saturation in Madison lime, but lost the hole and is plugging back.

Two wildcats in Colorado near Denver are resuming. Lafayette M. Hughes No. 14 Gramps, an outpost well on the Gramps structure, had water in the Dakota and was abandoned. Morgan, Flynn & Cobb's wildcat in Kiowa County, eastern Colorado, appears to be a failure and will probably abandon.

Fourteen isolated Indian leases at the south end of Cut Bank field in Montana netted the Indians $19,350 at auction sale. Cut Bank had one oil well, one dry hole and one gas well and three first reports. An important wildcat was spotted on the north nose of the Cut Bank structure. Kevin-Sunburst field had three completions, one a gas well, and four new operations.

NEW MEXICO

Major interest in New Mexico continued to center around the Vacuum area, which recently was revived when Magnolia Petroleum Co. No. 2 State-Bridges, C SW SE section 14-17-34, flowed 582 bbls. of oil in 24 hours with tools still in the hole, making it the first well to find large production in the pool. It extended the Vacuum area one-half mile southwest. When opened for test the past week it flowed 51 bbls. of oil naturally in one hour from pay at 4,562-93 feet, total depth.

One mile due south of the new well, Magnolia Petroleum Co. was digging cellar at No. 3 State-Bridges, C SW SE section 23-17-34.

The extreme north end of the Monument field was extended one location east at Tide Water Associated Oil Co. No. 4-J State, C NE NW section 17-19-37, which flowed 351 bbls. of oil in 12 hours on casing flow test following shot. It was bottomed at 4,047 feet in lime, and was not a completion, operators still testing.

The north edge of the field also was extended one location west at Gulf Oil Corp. No. 1 Kyte, C SE SE section 7-19-37, which flowed 221 bbls. of oil in six hours through three-fourths inch tubing choke. It topped pay at 3,945 feet and was a completion at 4,025 feet, total depth. Gas gauged 1,573,000 feet.

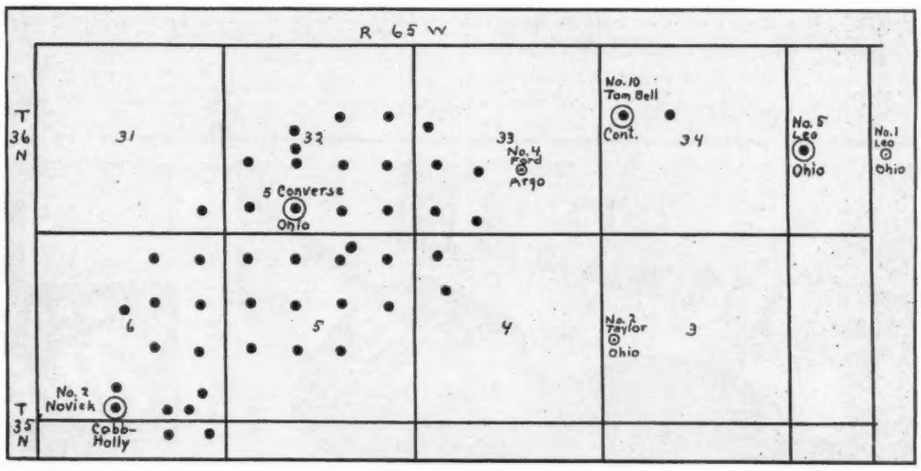
Only three other Lea County wells were reported as completions. Continental Oil Co. No. 3 Sanderson B, NE NE SE section 10-20-36, topped pay at 3,860 feet, was bottomed at 3,891 feet, and flowed at the rate of 9 bbls. of oil an hour through tubing choke.

Continental Oil Co. No. 6 Sanderson A, NE SW SW section 11-20-36, flowed 14 bbls. of oil in one hour from pay topped at 3,850 feet, total depth 3,883 feet in lime. Gas gauged 537,000 feet.

Skelly Oil Co. No. 1 E. C. Hill, C SW NE section 6-21-37, had pay at 2,672 feet, total depth 3,870 feet, plugged back to 3,791 feet, shot and acidized and flowed 170 bbls. of oil daily, completed.

Lea County

Amerada Pet. Corp. No. 6 Byrd, SE sec. 12-20-36. Loc.
Amerada Pet. Corp. No. 1 Hare, C SW SW sec. 33-21-37. Moving in rig.
Amerada Pet. Corp. No. 3 Laughlin, C NW NE sec. 9-20-37. T.D. 2,585 ft.; set 8-in. 2,573 ft.
Amerada Pet. Corp. No. 2-G State, C NW SW sec. 18-19-37. Drlg. 3,894 ft.
Anderson-Prichard Oil Corp. No. 1 Wells, C SE SE sec. 5-27-37. Drlg. 3,575 ft.
Anderson-Prichard Oil Corp. No. 1 Gregory, NW sec. 33-25-37. T.D. 3,237 ft.; preparing to run tubing to test.
Anderson-Prichard Oil Corp. No. 2 Langlie, SE sec. 8-25-37. T.D. 3,466 ft.; shot; cleaning out.
Anderson-Prichard Oil Corp. No. 3 Langlie, NE sec. 8-25-37. Loc.
Anderson-Prichard Oil Corp. No. 1-D Langlie, NE sec. 8-25-37. Drlg. 1,252 ft.
Anderson-Prichard Oil Corp. No. 1 Lanehart, SW sec. 21-25-37. T.D. 2,917 ft.; set 5-in. 2,891 ft.
E. G. Bradley No. 1 Lanehart, C SW NE sec. 28-25-37. T.D. 3,221 ft.; acidized; swabbing.
Bradley Oil Co. No. 1 Grizzell, C SW NE sec. 5-22-37. Drlg. 1,200 ft.
Cities Service Oil Co. No. 6-A Clossen, C SW SE sec. 6-22-36. T.D. 3,762 ft.; set 7-in. at 3,760 ft.
Cities Service Oil Co. No. 1-H State, C NE NE sec. 17-22-36. T.D. 3,884 ft.; preparing to deepen.
Continental Oil Co. No. 1-B-10 Britt, SW sec. 10-20-37. Drlg. 308 ft.
Continental Oil Co. No. 1-A-15 Cline, NW sec. 15-23-37. Wildcat; P.B. from 3,860 to 3,672 ft.; testing.
Continental Oil Co. No. 6-A-30 Lockhart, NW sec. 30-21-36. T.D. 3,820 ft.; set 5½-in. at 3,814 ft.
Continental Oil Co. No. 2-B-31 Lockhart, C SE SW sec. 31-21-36. T.D. 3,775 ft.; testing.
Continental Oil Co. No. 3-B-31 Lockhart, SE sec. 31-21-36. Derrick.
Continental Oil Co. No. 6 Lockhart, NE SE NW sec. 30-21-36. T.D. 294 ft.; set 10¾-in. csg. at 286 ft.
Continental Oil Co. No. 3-A-14 Sanderson, NE sec. 14-20-36. Drlg. 1,120 ft.
Continental Oil Co. No. 1-E-17 State, C SE SE sec. 17-22-36. T.D. 3,842 ft.; F. 219 B.O. in 24 hrs.; testing.
Gulf Oil Corp. No. 1 Mattern G, C NE SE sec. 18-21-37. Drlg. 3,800 ft.
Gulf Oil Corp. No. 2 Reeves, C SE NW sec. 29-20-37. T.D. 3,840 ft.; testing.
Gulf Oil Corp. No. 1 Stitcher, C SE SW sec. 4-22-37. Drlg. 3,700 ft.
Gulf Oil Corp. No. 2 Stuart, C SE NW sec. 10-25-37. Drlg. 2,872 ft.
Homestead No. 1 Clifford, SW sec. 12-26-32. Wildcat; drlg. 4,557 ft.
Humble O. & R. Co. No. 1 Fopeano, C SE SW sec. 25-20-36. Drlg. 3,185 ft.
Humble O. & R. Co. No. 2 Saunders, C NW NW sec. 9-22-34. Drlg. 2,045 ft. in new hole.
Jal Nat. Gas Corp. No. 2 Justis, NE sec. 20-25-37. T.D. 3,029 ft.; testing.
Landreth Prod. Co. No. 1 Grizzell, NE sec. 8-22-37. Drlg. 300 ft.
Mack & Stauffer No. 2 Grizzell, C NE NE sec. 8-22-37. T.D. 3,628 ft.; set 7-in. at 3,357 ft.
Magnolia Pet. Co. No. 4 Cary, C SW SW sec. 29-21-37. Drlg. 3,474 ft.
Magnolia Pet. Co. No. 1 Hardy, SW SW NW sec. 29-21-37. T.D. 3,776 ft.; testing.
Magnolia Pet. Co. No. 1 State G, NW NW NE sec. 34-17-34. T.D. 4,905 ft.; P.B. 4,794 ft.
Magnolia Pet. Co. No. 2 State-Bridges, sec. 14-17-34. T.D. 4,593 ft.; F. 51 B.O. in 1 hour, naturally.
Magnolia Pet. Co. No. 3 State-Bridges, C SW SE sec. 23-17-34 Cellar.



Lance Creek field in Niobrara County, eastern Wyoming, showing recent extensions and Cobb-Holley Development Co.'s deep test in section 5-35n-65w which started at 100 bbls. an hour of 42-gravity oil

Continental Oil Co. No. 3-A-26 State, C SW NE sec. 26-19-36. Drlg. 2,682 ft.
Continental Oil Co. No. 1-A-30 Warren, C SE NW sec. 30-20-38. T.D. 3,817 ft.; set 5½-in. 3,626 ft.
Crandall, Osmond & Maxwell et al No. 1 Maxwell Permit, C SE SE sec. 2-11-36. Drlg. 2,440 ft.
Cranfill & Germany No. 1 Weir, C NE NE sec. 15-20-37. T.D. 4,210 ft.; S.D.O.
Culbertson & Irwin No. 2-A Humphrey, NE NE NW sec. 3-25-37. Drlg. 2,450 ft.
Culbertson & Irwin No. 3-A Humphrey, NE SW NE sec. 3-25-37. Drlg. 1,330 ft.
Culbertson & Irwin No. 2 Moseley, NE NW SW sec. 34-24-37. Drlg. 3,385 ft.
Emperor Oil Co. No. 1 Johns, C SW NW sec. 24-17-32. Drlg. 3,170 ft.
Empire Oil & Ref. Co. and Repollo Oil Co. No. 2 Brunson, NW sec. 3-22-37. T.D. 3,625 ft.; set 5½-in.
Empire Oil & Ref. Co. No. 1-G State, sec. 2-21-36. T.D. 3,900 ft.; shut down.
Empire Oil & Ref. Co. No. 2-B State, C SE SW sec. 2-21-37. Drlg. 3,850 ft.
J. E. Farrell No. 2-C Walden, C SE SW sec. 15-22-37. Drlg. 3,665 ft.
General Crude and Magnolia Pet. Co. No. 2-C State, SE SW SE sec. 16-23-36. Drlg. 3,496 ft.
Great Western Prod. Co. No. 1 Bordages, NW cor. sec. 33-19-37. T.D. 3,931 ft.; acidized; F. 37 B.O. in 1 hour.
Great Western Prod. Co. No. 1 State, SW cor. sec. 16-26-37. Cellar and pits.
Gulf Oil Corp. No. 1 Boyd, sec. 23-22-37. T.D. 3,681 ft.; testing.
Gulf Oil Corp. No. 2 Cole, C NE NE sec. 16-22-37. T.D. 1,141 ft.; shut down.
Gulf Oil Corp. No. 1 Elliott, SW SE SE sec. 15-25-37. Drlg. 3,380 ft.
Gulf Oil Corp. No. 3-C Kutter, NW sec. 18-19-37. Drlg. 800 ft.
Gulf Oil Corp. No. 1-B White, SE sec. 35-20-36. Derrick.
J. A. Mascho No. 1 Cloyd, C SE SE sec. 20-22-33. Wildcat; T.D. 1,075 ft.; S.D. for repairs.
McDonald & Weiner No. 1 Elliott, SE cor. sec. 19-21-37. Drlg. 3,415 ft.
Mid-Continent Pet. Corp. No. 2 Boren, C SE NE sec. 20-22-36. Location.
Mid-Continent Pet. Corp. No. 4 Greer, C SW NW sec. 21-22-36. T.D. 3,830 ft.; swabbing.
Murray et al No. 4 State Wallace, NW SW NW sec. 3-21-36. T.D. 3,840 ft.; flowing 45 B.O. daily.
National Drlg. & Prod. Co. No. 1 Flint, C NE NE sec. 29-20-34. Wildcat; drlg. 3,653 ft.
Ohio Oil Co. No. 2 Grizzell, C NW SE sec. 5-22-37. T.D. 3,600 ft.; prep. to drill in.
Ohio Oil Co. No. 1 Hardy, NE NE SE sec. 20-21-37. T.D. 150 ft.; R.U.S.T.
Ohio Oil Co. No. 1 Kutter D, C SW SW sec. 8-19-37. Drlg. 3,535 ft.
Ohio Oil Co. No. 7 State-McDonald, C SW SE sec. 16-22-36. T.D. 3,871 ft.; cleaning out.
Ohio Oil Co. No. 9 State McDonald, SW sec. 16-22-36. Drlg. 1,500 ft.
Phillips Pet. Co. No. 1 Lea, C NW NW sec. 30-17-34. Wildcat; T.D. 4,952 ft.; plugging back.
Plains Prod. Co. No. 1 Humphreys, NE sec. 3-25-37. Loc.
Plains Prod. Co. No. 1 Stuart, NE SW SW sec. 10-25-37. Drlg. 1,100 ft.
Repollo Oil Co. No. 1 Carter, SW SE NE sec. 8-24-37. Drlg. 3,362 ft.
Repollo Oil Co. No. 3 Jamison, SW NE NE sec. 21-24-37. T.D. 3,639 ft.; F. 25 B.O. in 24 hours.
Repollo Oil Co. No. 4 Roach, NW NW SW sec. 21-20-37. Drlg. 3,611 ft.
Repollo Oil Co. No. 1 Turner, sec. 29-21-37. T.D. 3,800 ft.; flowed 66 bbls. in 24 hours.
Repollo Oil Co. No. 2 Moseley, NE SE SW sec. 34-24-37. Drlg. 3,005 ft.
Repollo Oil Co. No. 1 White, SE NE SE sec. 35-20-36. Drlg. 3,500 ft.

Republic Production Co. No. 3 Crosby, SE SE SW sec. 28-25-37. Drlg. 2,748 ft.
Rowan Drlg. Co. No. 1-A Elliott, SW sec. 27-22-37. T.D. 3,665 ft.; flowing est. 100 B.O.P.D. while cleaning out.
Rowan Drlg. Co. No. 1 Elliott B, C NE NW sec. 9-22-37. Drlg. 3,500 ft.
Rowan Drlg. Co. No. 2 Elliott B, C NW NW sec. 9-22-37. T.D. 1,200 ft.; fishing.
Rowan Drlg. Co. No. 2 Walden, C NE NW sec. 15-22-37. Derrick.
Rushwold Oil Co. No. 1 Mattix, NE sec. 10-24-37. Cellar and pits.
Samedan Oil Co. No. 3 Hughes, sec. 4-23-27. T.D. 3,631 ft.
Schermerhorn Oil Co. No. 2 Woolworth, sec. 29-24-37. T.D. 3,577 ft.; F. 65 B.O. in 24 hrs.; fishing.
Shasta Oil Corp. No. 1 Woolworth, NE NE NW sec. 28-24-37. Drlg. 3,415 ft.
Shell Pet. Corp. No. 3 Black, SE SE SW sec. 21-24-37. Drlg. 2,934 ft.
Shell Pet. Corp. No. 4-E State, C SW NW sec. 12-20-36. Drlg. 3,777 ft.
Skelly Oil Co. No. 5 J. B. Baker, C SE NW sec. 27-22-37. T.D. 3,620 ft.; testing.
Skelly Oil Co. No. 1 Combest, NW NW SE sec. 27-23-36. Loc.
Skelly Oil Co. No. 3 E. Sims, C SE SE sec. 2-23-37. T.D. 3,320 ft.; standardizing.
Skelly Oil Co. No. 3 G. W. Sims, C NW NE sec. 9-23-37. T.D. 3,642 ft.; cleaning out.
Skelly Oil Co. No. 4 G. W. Sims, C NW NW sec. 10-23-37. T.D. 3,634 ft.; testing.
Skelly Oil Co. No. 1-C R. R. Sims, sec. 3-23-37. Drlg. 3,622 ft.
Skelly Oil Co. No. 6 R. R. Sims, C SW SW sec. 3-23-37. T.D. 3,630 ft.; to shoot.
Skelly Oil Co. No. 1-E W. P. Sims, C NW NE sec. 10-23-37. T.D. 3,625 ft.; flow. 452 bbls. in 24 hrs.
Skelly Oil Co. No. 1 State H, C E half SW NW sec. 25-20-36. Derrick.
Skelly Oil Co. No. 2 State H, C E half NW NW sec. 25-20-36. Loc.
Skelly Oil Co. No. 2 Sticher, C NW SW sec. 4-22-37. Drlg. 1,065 ft.
Stanolind O. & G. Co. No. 20-6-A Farnsworth, C SE NW sec. 18-26-37. T.D. 3,146 ft.; P.B. 3,185 ft.; testing.
Stanolind O. & G. Co. No. 8 Gilluly A, C NW SE sec. 24-20-36. Drlg. 2,272 ft.
Stanolind O. & G. Co. No. 9-A Gilluly, C NE NW sec. 24-20-36. Drlg. 2,640 ft.
Stanolind O. & G. Co. No. 12 Gilluly A, C NW NW sec. 24-20-36. Cellar and pits.
Stanolind O. & G. Co. No. 2-A Langlie, C NW SW sec. 9-25-37. Drlg. 690 ft.
Stanolind O. & G. Co. No. 1-B Hill, NE sec. 6-21-37. Loc.
Stanolind O. & G. Co. No. 2-B Langlie, C NW NW sec. 15-25-37. T.D. 3,458 ft.; P.B. 3,153 ft.; S.D.O.
Stanolind O. & G. Co. No. 3 Meyer A, C SW SE sec. 22-24-37. Loc.
Stanolind O. & G. Co. No. 1 State, C SE SE sec. 2-21-36. Drlg. 2,549 ft.
Stanolind O. & G. Co. No. 1 State, C SE SE sec. 16-24-37. Drlg. 890 ft.
Stanolind O. & G. Co. No. 1 Thompson, NE sec. 6-21-27. Loc.
W. H. Street No. 2 Wood, C SW NE sec. 22-22-37. T.D. 3,692 ft.; cleaning out.
Texas Co. No. 2 Fristoe, NW NE NE sec. 3-25-37. Cellar and pits.
Texas Co. No. 1-L State, C SW NE sec. 1-18-34. Drlg. 1,605 ft.
Texas Co. No. 2 Weir, C SE SW sec. 23-19-36. T.D. 4,046 ft.; acidized; testing.
Texas Pacific C. & O. Co. No. 6-A State, Acct. 2, NE sec. 7-22-36. Drlg. 276 ft.
Tide Water Oil Co. No. 4-J State, C NE NW sec. 17-19-37. T.D. 4,047 ft.; flowed 351 B.O. in 12 hrs.
Two State Oil Co. No. 1 Atha, C SW SW sec. 31-21-36. Drlg. 1,775 ft.
Williams & Cockburn No. 3 Miller, C SW SW sec. 23-17-32. T.D. 3,880 ft.; C.O.

Eddy County

F. E. Baker No. 1 Eddy, NE sec. 12-22-27. T.D. 55 ft.; shut down.
Fred Brainerd No. 2 Brainerd, sec. 5-18-27. T.D. 1,466 ft.; shut down.
Ed Bryant No. 1 Stebbins, C NE SW sec. 19-20-29. Drlg. 795 ft.
Carper Drlg. Co. No. 2 Gissler, SW SE NW sec. 23-17-30. T.D. 2,681 ft.; testing.
Cities Service Oil Co. No. 1 State, CSL SW SE sec. 16-17-30. T.D. 2,690 ft.; fishing.
T. D. Collins No. 1 Weiler, C NW NW sec. 13-24-36. T.D. 1,970 ft.; P.B. 1,965 ft.; testing.
Continental Oil Co. No. 1 Barret, SE sec. 14-20-30. Drlg. 2,190 ft.
Continental Oil Co. No. 1 Etz, C NW NE sec. 24-16-30. T.D. 3,185 ft.; swabbing.
Emperor Oil Co. No. 3 Puckett, C NE NW sec. 24-17-31. T.D. 3,150 ft.; C.O.
Finley & Cherry No. 1 Buchley, C NW NW sec. 28-16-31. Wildcat; T.D. 1,220 ft.; bailing water.
Flint Prod. Co. No. 1-B State, SE sec. 20-17-30. Drlg. 3,800 ft.
C. J. Frederick No. 1 Reed, C NE SW sec. 28-24-28. T.D. 95 ft.; S.D., repairs.
F. W. & Y. Oil Co. No. 6-A Gissler, NE sec. 23-17-30. Drlg. 1,420 ft.
F. W. & Y. Oil Co. No. 7-A Gissler, SE sec. 14-17-30. Drlg. 1,340 ft.
F. W. & Y. Oil Co. No. 8-A Gissler, NE sec. 23-17-30. Loc.
F. W. & Y. Oil Co. No. 1-B Gissler, SW sec. 14-17-30. Loc.
F. W. & Y. Oil Co. No. 3 Jackson, C NW SE sec. 13-17-30. T.D. 2,953 ft.; fishing.
Grayburg Oil Co. No. 8 Burch, SE SE NW sec. 19-17-30. Drlg. 2,600 ft.
R. L. Holcomb No. 1 State, NW sec. 22-17-28. T.D. 115 ft.; shut down.
Woodworth Hawkins No. 1 Mack, C SW SW sec. 20-24-27. Drlg. 252 ft.
C. F. Ingram No. 1 Page, NE NE SW sec. 15-21-28. T.D. 1,140 ft.; S.D.
Murchison & Closuit No. 1-C State, SW SE NE sec. 16-17-31. T.D. 3,749 ft.; P.B. 3,745 ft.; H.F.O.; to pump.
Nash-Windfohr & Brown No. 4-A Jackson, NE sec. 13-17-30. T.D. 3,250 ft.; shut down.
Nash-Windfohr & Brown No. 5-A Jackson, NE sec. 13-17-30. Drlg. 1,620 ft.
Nash-Windfohr & Brown No. 4-A Stevens, C SW SW sec. 13-17-30. T.D. 2,951 ft.; S.D.O.
Nash-Windfohr & Brown No. 2-B Stevens, NW sec. 13-17-30. Rig.
Nash-Windfohr & Brown No. 6-A Jackson, SE sec. 13-17-30. R.U. machine.
Nash-Windfohr & Brown No. 7-A Jackson, SE sec. 13-17-30. R.U. machine.
W. A. Nichols No. 1 Johnson, NE sec. 35-16-21. Wildcat; T.D. 3,697 ft.; tstg.
Premier Pet. Corp. No. 1-E Parker, sec. 22-17-30. T.D. 2,943 ft.; set 7-in. csg.
Repollo Oil Co. No. 2-D McIntyre, NW NE SW sec. 20-17-30. Drlg. 3,089 ft.
Paul Sargent No. 1 State, NE sec. 16-17-31. T.D. 3,749 ft.; P.B. 3,745 ft.; testing.
R. A. Shugart No. 1 Cowethard, C NW SW sec. 35-18-31. Drlg. 2,960 ft.
W. O. Snyder No. 1 Pecos Irrigation, C NE SE sec. 15-25-28. T.D. 960 ft.; S.D. repairs.
Weiner & McDowell No. 1 Kerr, C SE NW sec. 3-24-24. T.D. 1,820 ft.; S.D.O.
W. K. Royalty Co. No. 1 State, C SW NE sec. 16-17-31. T.D. 3,241 ft.; S.D.O.
Western Gas Co. No. 1 Cagle, C NW NW sec. 8-26-30. Drlg. 1,830 ft.

Chaves County

English & Harmon No. 11 Billingslea, SE sec. 9-15-29. T.D. 3,545 ft.; P.B. 3,427 ft.; S.D.
E. J. Fisher No. 1 Etz Permit, NE sec. 23-7s-36. M.I.M.
Mathewson et al No. 1 McDonald, C NE NW sec. 19-14-27. Drlg. 470 ft.

Curry County

Bond & Harrison No. 1 Hart ranch, C NW SE sec. 13-2n-31. T.D. 2,932 ft.; drlg. on lost tools.

Dona Ana County

Juels C. Bertrand No. 1 Casad Permit, sec. 24-26-5e. T.D. 47 ft.; S.D.O.

McKinley County

S. Dysart No. 1 Government, NE sec. 14-14-10w. T.D. 1,390 ft.; fsg.

Otero County

George Mulvey No. 1 State, SW cor. sec. 11-25-8. T.D. 263 ft.; S.D.
Fred Turner No. 1 Evans, NW NW SW sec. 22-14-12 O.W.D.D.; wildcat; T.D. 3,763 ft.; S.D.

Roosevelt County

C. S. Peterson and Conquistadores Oil Co. No. 1 Good, NW SE SE sec. 28-5s-30. Drlg. 360 ft.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc., No. 2 North Albuquerque, NE SE NW sec. 19-11n-4e. S.D. 3,700 ft. for repairs.

San Juan County

Jack Amenda No. 4 Hart, NW NE SW sec. 25-30n-12w. Drlg. 1,995 ft.
Anna Oil Corp. No. 6 Govt., SW NE NE sec. 33-30n-11w. S.D. 725 ft. for pipe.

Socorro County

Central New Mexico Oil Co. No. 1 Brown, SE NW sec. 16-3n-1e. S.D. 1,000 ft.; boiler repairs.

ATLAS DROP FORGINGS *resist* Corrosion *and* Heat
ATLAS DROP FORGE CO., LANSING, MICH.

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NOVO OIL FIELD LIGHT PLANTS are of rugged construction designed especially for the oil field—Over size Engine—Over size Fuel Tank—House over All—Best Heavy Duty Generator Available—Generator Shaft Extension—Switchboard Convenient and Protected—Sled Skid Base. Outfit arranged for operation on natural gas or gasoline.
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Valencia County

C. A. Brober et al No. 1 Fuqua, NE NE sec. 19-5n-3e. S.D. 900 ft. to chge. to rot.
Big Three Oil Co. No. 1 Dailes Townsite, SE SE NW sec. 5-6n-1e. T.D. 6,001 ft.; set whipstock at 5,640 ft.; drlg. by D.P.

COLORADO

Adams County

Oklahoma Oil Co. No. 1 Baxter, C SW sec. 2-3s-66w. Resumed drlg. at 4,368 ft.
Glenridge Oil Corp. No. 1 Hills, SE SE SE sec. 27-3s-64w. T.D. 4,345 ft.; recovered lost casing, cemented hole and preparing to resume drilling.

Archuleta County

Lafayette M. Hughes No. 14 Gramps, SW NW NW section 13-33n-2e, Gramps No. 1 structure, an outpost well half a mile west and a mile north of the nearest producer, was abandoned at 2,250 feet. It had hot sweet water in the Dakota at 2,238 feet. The Prospect Oil Syndicate No. 1 Garnett, which was north of the Hughes well, skidded rig half a mile east and is rigging up for No. 2 Lena M. Garnett. The new location puts it due north of production and makes it an important test of the north side.

Prospect Oil Syndicate No. 2 Lena M. Garnett, NW SW NE sec. 13-33n-2e. R.U. (cor. No. and loc.).
Cortez Oil Co. No. 1-A Crowley, NW SE NE sec. 2-32n-2e. Drlg. 260 ft. in sh.

Boulder County

J. B. Furstenberg No. 1 Foote, SE sec. 20-1n-70w. T.D. 2,480 ft.; fshg.
Boulder Prod. & Ref. Co. No. 11 Harlow Est., SE NE sec. 36-2n-71w. S.D.O. 765 ft.; dry in Muddy.

Garfield County

Roaring Fork Oil Co. No. 1 Patterson, C NE sec. 36-7s-88w. T.D. 492 ft.; W.O. pipe.

Huerfano County

G. W. Pressey No. 1 Ojo, SW NE sec. 10-29s-69w. T.D. 3,550 ft. Cmtg. through gas flow.
G. W. Pressey No. 2 Alamo, C SW SE sec. 3-27n-68w. Spd.

Jackson County

Colorado Oil Ref. Co. No. 1 North Park Coal, NW NW sec. 18-9n-78w. Drlg. 3,015 ft.

Kiowa County

Morgan, Flynn & Cobb No. 1 Hostetter, C NW SE section 6-20s-46, in the Nee-No-Shee district, is shut down at 5,540 feet and probably will be abandoned. It had the top of the Arbuckle at 5,360 feet. Before abandoning it will run a tester. It had a good show of gas in the base of the Permian at 2,960 feet. The top of the Kansas City lime was approximately at 4,170 feet and top of the Chester was at 4,925 feet. The well was drilled by Helmerich & Payne.

Morgan & Flynn et al No. 1 Hostetter, C NW SE sec. 6-20s-46w. S.D.O. 5,540 ft.

Larimer County

Great West O. & G. Corp. No. 1 Haworth, C SW SE sec. 16-4n-69w. Drlg. 3,025 ft. in br. sh.

LaPlata County

N. Spatter No. 1 Bryce, SE SW SW sec. 31-33n-9w. Drlg. 700 ft.; carrying 10-in.

Lincoln County

Consolidated Smelting & Metals Corp. No. 1 Hancock, NE NE SW sec. 7-17s-52w. T.D. 2,860 ft. in r.b.; U.R. 8¼-in. to bottom.
Gulf Oil Corp. No. 1 Smith, C SW SE sec. 19-15s-53w. Drlg. 3,720 ft. in r.b.

Mesa County

Midwest Drlg. & Dev. Co. No. 1 Callahan, NE NW SE sec. 30-8s-97w. Drlg. 1,990 ft. in dry hole; rng. higher than Continental well 1 mi. to NW.
Continental Oil Co. et al No. 1 Miller, SW SW NW sec. 36-8s-91w. R.U.R.

Moffat County

Morapas Pet. Co. No. 1 Coles, SW SW SE sec. 1-3n-92w. Drlg. 2,135 ft. in sh.
Anderson-Kerr Drlg. Co. et al No. 1 Denise, C SE SE sec. 19-9n-99w. S.D. 2,500 ft.; W.O. rotary tools.

Montezuma County

McElmo Oil Co. No. 1 West, NE NW NW sec. 31-36n-17w. T.D. 3,830 ft.; rmg. at 3,790 ft. to set 4¾-in. on bottom; making about 3 B.P.D. 45 grav. oil; 830 ft. in Penn.

Morgan County

Swisher et al No. 1 Lunt, SE cor. sec. 3-4n-60w. T.D. 1,718 ft.; fsg. two strings tools and bailer.

Park County

South Park Oil Co. No. 1 Lemar, on the south dome of the Hartsel anticline, which has been shut down for six weeks at 5,210 feet for pipe, resumed this week and found 3,000 feet of oil standing in the hole. It had some shows when operations temporarily ceased. Oil will be bailed down pipe run and hole drilled deeper.

South Park Oil Co. No. 1 State, SE SE SW sec. 16-11s-75w. S.D. 5,705 ft.
South Park Oil Co. No. 1 Lemar, NE NE SE sec. 34-11s-75w. T.D. 5,210 ft.; prep. to run 6⅝-in. to 5,200 ft.

Pitkin County

Glenco Dev. Co. No. 1 Govt., NW cor. sec. 9-10s-89w. S.D. 1,040 ft.

Rio Blanco County

Utah Southern Oil Co. No. 1 Gray, NW sec. 19-2n-102w. Loc.
Buford Oil Co. No. 1 Govt., C SW SW sec. 16-1n-91w. Drlg. 1,140 ft.
Texas Co. and California Co. No. 1 Unit, SW SE NW sec. 35-3n-94w. T.D. 5,933 ft.; repairing engine.

WYOMING

Albany County

Murphy Oil Co. No. 10 Holst, SE SE NE sec. 13-17n-77w. Drlg. 2,173 ft. in gr. sh. and shells.
Ohio Oil Co. No. 1 Griffin, C SE SW sec. 2-21-77w. Drlg. 1,403 ft.; top Muddy 962 ft.; w. in Dakota 1005-71 ft.
Murphy Oil Co. No. 9 Holst, NW SE NE sec. 13-17n-77w. Drlg. 3,236 ft. in gr. sh. and bentonite.
Wyco Oil Co., Inc., No. 1 Chappel, C NE NW sec. 33-21n-76w. T.D. 765 ft.; swbg.; incr. in gas.
Wyco Oil Co., Inc., No. 2 Chappel, NE NE NW sec. 33-21n-76w. Cd. Wall Creek at 830-858 ft.; tstg. S.O.

Big Horn County

Ohio Oil Co. No. 3 Sidon Canal, NW SW (Lot 40) sec. 24-56n-97w. Bldg. road.
Yale Pet. Corp. No. 1 Stock-Jones, SE cor. sec. 52-56n-97w. T.D. 4,054 ft.; sdt. D.P.; set 5¾-in. at 4,022 ft.
Ohio Oil Co. No. 1 Pryde, C SW SE sec. 24-56n-97w. T.D. 6,060 ft.; P.B. to 5,760 ft.; recmtd. 7-in. at 5,727 ft.
Joan Oil Co. No. 1 Howell, sec. 32-55n-97w. (Lot 63). T.D. 1,150 ft.; U.R. 12½-in.
Peay Oil Co. No. 1 Denio, Tr. 43-C, sec. 15-55n-97w. T.D. 3,930 ft.; fsg.

Campbell County

Powder River O. & G. Co. No. 1 Rhodes, NE SE NW sec. 24-49n-79w. Cmtd. 12½-in. at 650 ft.

Carbon County

Ohio Oil Co. has opened a small gas field in its test on the Bunker Hill structure, Carbon County, in its No. 1 Wyoming Oil & Gas Co., C SE SW section 29-27n-89w. It was completed at 1,488 feet for 5,000,000 feet of gas per day from the Shannon sand at 1,224-1,480 feet. The Prairie Oil & Gas Co. drilled a test to the Sundance at 6,791 feet in 1931, at this location. It had shows of gas and plugged back, but was unable to locate the source, and abandoned the hole. The Ohio's test located this gas in the Shannon sand, but before completing it had to replug the old Prairie well a few feet away.

Ohio Oil Co.-California Co. No. 4-B Kyle, C SW SW sec. 24-21n-79w. Loc. (first report, inside well at Medicine Bow).
Ohio Oil Co.-California Co. No. 6 Union Pacific-Cronberg, C SW SE sec. 23-21n-79w. Cellar.
Ohio Oil Co. No. 12 H.&C., SE SW sec. 35-20n-78w. Drlg. 1,755 ft.
Sinclair-Wyoming Oil Co. No. 11 Wertz, SE NW NW sec. 7-26n-89w. Drlg. 5,268 ft. in r.b.
Producers Oil Co. No. 1, CNL sec. 14-20s-88w. Drlg. 194 ft.
Ohio Oil Co.-California Co. No. 5 Cronberg-U.P., C NW NW sec. 25-21-79w. Cg. 5,610 ft. in hd. tight sd.; top Sundance 5,530 ft.
Ohio Oil Co. No. 1 Union Pacific, C NW NW sec. 20-21n-80w. Drlg. 5,064 ft.
Ohio Oil Co.-California Co. No. 3-A Kyle, C SW NE sec. 26-21n-79w. T.D. 5,696 ft. in Sundance; rng. Haliburton tstr.; top Sundance 5,624 ft.; 24 ft. sat. sd. rec.
Medicine Bow Oil Co. No. 1 Hintze-Govt., C NE SE sec. 18-22n-78w. T.D. 2,347 ft.; P.B. to second Sundance at 2,140-80 ft.; shot with 40 quts.; tstg.

Converse County

John T. Coffee, Jr., No. 1 Mary Gaspar, NW NW SW sec. 25-32n-69w. Loc. (first report; West Shawnee district).
Ainsworth Oil Co. No. 1 Marberger, NE SE NE sec. 34-32n-69w. Rig. Contr. to H. W. Conley to go 800 ft.; Shawnee dist.
Hail-Thornton et al No. 1 Roth, C NW SE sec. 13-32n-69w. S.D. 240 ft. for csg.
Wyoming Southern Oil Co. No. 1 Lane, C NW NE sec. 27-32n-69w. Spd. and S.D.
Elbe Oil Ld. & Dev. Co. No. 1 Benham, NW NE sec. 5-31-70w. M.I.M.
Tom Carney No. 1 Beaver, SE SE SW sec. 28-35n-68w. M.I.M.
Chadron-Osage Oil Co. No. 1 State, SW cor. sec. 16-32n-69w. T.D. 4,040 ft.; cmtd. 8¼-in. on bottom.
Wyoming-Southern Oil Co. No. 3 Salisbury, NE NE SE sec. 27-32n-69w. Drlg. 300 ft. in new hole; cmtd. 8¼-in. at 200 ft.
Chadron-Osage Oil Co. No. 1, SW NE NE sec. 27-32n-69w. Loc.; shallow gas well.

Fremont County

Stanolind Oil & Gas Co. No. 1 Government, a deep test on the Beaver Creek dome, began spudding September 26. The well starts in the Tertiary and the first objective is expected at around 8,000 feet.

Sinclair-Wyoming Oil Co. No. 2-C Muskrat, a deep test on the Muskrat dome, was in the top of the Madison lime at 8,097 feet with a showing of oil saturation when the drill pipe was lost. Efforts to recover it were unavailing and hole will be plugged back to the base of the Embar at 7,555 feet where it will be acidized with 1,000 gallons before testing. This is the deepest test made of the structure which produces gas in large quantities in the upper horizons.

Stanolind O. & G. Co. No. 1 Govt., C SE SE sec. 3-33n-96w. Drlg. 250 ft.; prep. to set surf. pipe.
Sinclair Wyoming Oil Co. No. 2-C Muskrat, NE SW SW sec. 1-33n-92w. T.D. 8,097 ft.; P.B. to 7,555 ft. to test Embar.
H. Kenyon Burch No. 1 Enos, CEL NE NE sec. 28-3n-1w. S.D.O. 970 ft.; no shows.
Ben Stewart No. 1 Darnell, NE SE sec. 26-3n-1w. Drlg. 500 ft.; 8¼-in. at 475 ft.

Hot Springs County

Italo Pet. Corp. No. 1 Phebus-Govt., NW NW SW sec. 11-44n-98w. Drlg. 1,075 ft.

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DIFFICULT BOILER REPAIRS made easy with Smooth-On

Fig. 1. Soft Patch

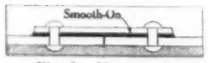

Fig. 2. Hard Patch

Soft patch:—The plate is curved at the edges to hold Smooth-On No. 1 or No. 3, and is held by tap or through bolts (Fig. 1). Under small patches use Smooth-On No. 1 mixed with water, quick setting. Under large patches use Smooth-On No. 3 made as stiff as it can be worked by adding dry Smooth-On No. 1 to the Smooth-On No. 3. Slow setting. *Hard patch:*—The plate of a hard patch fits the surface closely and is held by rivets (Fig 2). To insure tight contact and to prevent leakage, coat the plate with Smooth-On No. 3 before it is riveted into place. *Forcing Smooth-On under patch:*—To make new or old patches tight, drill and tap a hole in the patch to connect a force pump or grease gun (Fig. 3). Pump Smooth-On No. 3 into the patch, and plug the hole. The force pump can be made from pipe fittings, or a grease gun with large discharge opening may be used.

Fig. 3. Forcing Smooth-On under a patch

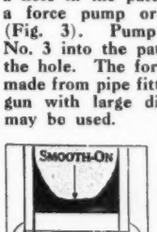

Fig. 4

LEAKS IN WATER LEGS

The seam is cleaned and Smooth-On No. 2 mixed with water to form a stiff putty is forced into the leaking seam (Fig. 4).

RUSTED-OUT STAY BOLTS

Replace with a threaded rod. Use nuts and washers on both sides of the boiler shell, and Smooth-On No. 1 on washers and under nuts.

The Smooth-On Handbook explains additional boiler repairs, including leakage at seams, rivets, flanges, threads, etc. Mail the coupon for your copy and get Smooth-On in 1 or 5-lb. can or larger keg, from your supply house or from us.

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Please send the SMOOTH-ON HANDBOOK.

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10-37 _____

Do it with **SMOOTH-ON**

Oscar B. Grace No. 4 Govt., CNL SE NW sec. 21-43n-92w. Drlg. 378 ft. (Kirby Creek).

Lincoln County

H. M. Eller et al No. 4 Govt., SE NW SW sec. 32-19n-116w. T.D. 401 ft.; will test S.O. in lenticular sd. at 397-401 ft.
Place Oil Co. No. 1 Davis, SE SE SE sec. 9-26n-11w. T.D. 1,228 ft.; set pipe on top sat. zone at 1,212 ft.; tstg.

Natrona County

Stanolind O. & G. Co. No. 11 Wyo. Asso.-Tensleep, C NE NW sec. 35-40n-79w. Drlg. 2,237 ft. in sh.
Stanolind O. & G. Co. No. 29 Wyo. Asso.-Tensleep, C SW SW sec. 26-40n-79w. Drlg. 1,175 ft. in sh.
General Pet. Corp. No. 1 Govt., C NW SE sec. 21-35n-77w. Spdg.
Ohio Oil Co. No. 9 Putnam, C NE NW sec. 4-35n-65w. T.D. 250 ft.; cmtd. 12½-in. at 112 ft.
Lewis Goekel No. 1 NE SE NW sec. 31-35n-62e. Resumed drlg. 1,550 ft.
J. M. Huber Corp. No. 3 Joss, NE NE SW sec. 6-35n-65w. Rigged; W.O. tools.
Continental Oil Co. No. 3 Apex-1, SE SE NE sec. 34-36n-65w. Drlg. 4,070 ft.; top Sundance 3,935 ft.
W. A. Maupin et al No. 1 Berggren, NW sec. 23-35n-63w. Rdy. to spd.
J. M. Huber Corp. No. 2 Lamb, NE SE SW sec. 27-36n-65w. Drlg. 4,232 ft. in r.b.; water in Sundance at 4,103-36 ft.; go to Minnelusa.
Continental Oil Co. No. 5-B Schuricht, C SW SW sec. 5-35n-65w. T.D. 5,150 ft.; D.P. stuck; fshg.
Ohio Oil Co. No. 2 Taylor-O.P.C.-32, NW NW SW sec. 3-35n-65w. Drlg. 5,687 ft. in Minnelusa.
Ohio Oil Co. No. 2 Leo-O.P.C., NE NE SE sec. 35-36n-65w. R.U.R.
Ohio Oil Co. No. 1 Leo-O.P.C.-7, NW NW SE sec. 35-36n-65w. T.D. 5,641 (C.D.) ft. in Minnelusa; 5¾-in. at 5,596 ft.; cir. oil and prep. to swb.
Continental Oil Co. No. 1 Leach, SW NE NE sec. 29-36n-64w. Drlg. 4,308 ft.
Argo Oil Co. No. 4 Ford, SW NW SE sec. 33-36n-65w. Cg. 5,906 ft. in hd. tight Minnelusa; gas at 5,854 ft. not tested; slight sat. in top Minnelusa.
Continental Oil Co. No. 8 Otto Rohiff, SW SW SE sec. 31-36n-65w. T.D. 4,025 ft.; prep. to swb.
Continental Oil Co. No. 10 Tom Bell Cattle, C SW NW sec. 34-36n-65w. T.D. 6,265 ft.; P.B. to pay in Minnelusa.
MacKinnie Oil & Dev. Co. No. 2 Thompson, NW NW NE sec. 7-35n-65w. T.D. 4,064 ft.; prep. to deepen.

Park County

Resolute Oil Co. No. 1 Northern Pacific, C NE NW sec. 21-57n-101w. Drlg. 5,750 ft.
Resolute Oil Co. No. 1 Govt., C NE NE sec. 20-57n-101w. Drlg. 8,543 ft. in Frontier.
Ohio Oil Co. No. 15 Woods, O.P.C.-3, NW SE sec. 30-58n-99w. Drlg. 2,053 ft.

Platte County

Dividend O. & R. Co., Inc., No. 1, CSL NW SW sec. 17-24n-66. Drlg. gr. sd. 3,414 ft.

Sublette County

Texas Co. No. 3-I, SE NW NW sec. 27-27n-113w. Drlg. 578 ft.

Sweetwater County

Italo Pet. Corp. No. 1 Govt., SW SW SW sec. 36-13n-95w. S.D. 610 ft.
Sinclair-Wyoming Oil Co. No. 77, SE NE NE sec. 10-26n-90w. Drlg. 287 ft.; 20-in. at 58 ft.
Mountain Fuel Supply Co. No. 1 Union Pacific, C SW SE sec. 13-17n-104w. Cmtd. off cave at 3,330 ft.; drlg. cmt.
Mountain Fuel Supply Co. No. 1 Williams, C NE NE sec. 5-12n-95w. Drlg. 2,056 ft.
Mountain Fuel Supply Co. No. 1 Union Pacific, C SE NE sec. 29-15n-104w, S of Baxter Basin. Loc.

Uinta County

E. A. Ottman et al No. 1 Govt., C SE NW sec. 26-14n-110w. T.D. 1,010 ft.; prep. to run 10-in.

Weston County

Chas. Goodell et al No. 1 State, C NE NE sec. 23-44n-63w. Ready to spud.
John Brorphy No. 1 George, SW SE NW sec. 26-48n-64w. Drlg. 1,120 ft. in r.b.
Mush Creek Oil Co. No. 1 Carmine, SE SW sec. 31-44n-62w. Drlg. 100 ft.
Le Faivre Oil Synd. No. 1 Martin, NW NW SW sec. 29-45n-68w. Drlg. 2,550 ft.; will U.R. 10-in. at 2,130 ft. for W.S.O.

MONTANA

Big Horn County

E. L. Dana No. 1 Hardy, SW NW sec. 22-9s-35e. T.D. 500 ft. in Claggett; fshg.
Daniels Pet. Co. No. 1 May, C SE SE sec. 13-1s-33e. S.D. 4,120 ft. (C.D.); H.F.W.

Carbon County

Miracle Oil Co. No. 2, CWL NE SE sec. 3-6s-23e. Drlg. 1,495 ft.
R. C. Tarrant No. 1 Heare, CWL NE NW sec. 14-6s-19e. T.D. 1,065 ft.; skdg. rig.
Ohio Oil Co. No. 16 Kirt, C SE SE sec. 4-7s-21e. Drlg. 5,706 ft. (C.D.)
Geo. Muth et al No. 1, CSL SE SE sec. 23-6s-23e. S.D. indef. at 1,500 ft.
Henderson Prod. Co. No. 1-H-11 Elk 11, SE SE NW sec. 35-9s-23e. S.D. 1,626 ft. for 8¼-in.; top Frontier 1,608 ft.; small S.O.
Shaw-Wa Pet Co. No. 1 Govt., SW SW NE sec. 35-9s-23e. R.U. Elk Basin field (first report).

Choteau County

Security Pet. Co. No. 1 Johnson, NE sec. 23-26n-3e. Drlg. 1,800 ft.

Cascade County

C. Leonard Smith No. 1-A Smith-Schwingle, NE NE SW sec. 14-22n-2e. T.D. 750 ft.; fshg. tools.

Fallon County

Johnson-Burke No. 1 Govt., SE NE SE sec. 6-8n-79e. Drlg. 1,200 ft.

Glacier County

Oil and gas leases on 17 isolated tracts of Blackfeet Indian land at the southern end of the Cut Bank field were offered for sale at Browning on September 18. The tracts are located in Township 32n, Ranges 5 and 6w. Fourteen tracts were sold, ranging in prices from $1 per acre up to $77 and aggregating $19,350. No major companies were represented at the sale. Terms of leases require one well to each 40 acres the first year and one well each year thereafter. The highest price of $77 per acre was paid by Frank Henry for 75 acres in the SW SW section 7-32n-5w.

Cut Bank had three completions, of which one was a gas well and one a dry hole, and three new operations.

Montana Headlight Oil Co. No. 10 Yunck, C SW SE section 1-34n-6w, was completed at 2,737 feet for 1,750,000 feet of gas per day from the Cut Bank sand at 2,704-37 feet.

The Texas Co. No. 5 Tribal-121, C SW SE section 36-33n-6w, was plugged and abandoned at 3,047 feet. The Cut Bank sand at 3,036-42 feet made one bailer of oil after standing 12 hours following a shot with 20 quarts.

The Texas Co. No. 3 State (M-455), C NE NW section 16-32n-5w, swabbed 127 bbls. the first 24 hours at 3,030 feet, total depth. The 7-inch was cemented at 3,000 feet.

One of the new locations will be an important test. It is A. B. Cobb No. 1 State, C NE NE section 30-37n-4w, to the north of the field and to the east of two wells drilled two years ago in the township to the west. The area was core drilled before location was spotted. Cobb, the Glacier Production Co. and Warren Hastings control most of the acreage.

A. B. Cobb No. 1 State, C NE NE sec. 30-37n-4w. M.I.M. (first report).
Texas Co. No. 8 Tribal-122, CEL SW SE sec. 6-32n-5w. Cellar (first report).
R. V. Hole No. 3 All.-124, SE SW SE sec. 1-32n-6w. Spdg. 75 ft. (first report).
Glacier Prod. Co. No. 1 Forbes Unit, C SE NW sec. 4-34n 5w. Drlg. 265 ft.
Glacier Prod. Co. No. 3 Coburn, NE NE NW sec. 8-33n-5w. R.U.
Glacier Prod. Co. No. 1 Bickett Unit, 2,640 ft. W of E line and 2,480 ft. N of S line, sec. 15-34n-5w. Drlg. 1,245 ft.; Colo. 270 ft.; 10¾-in. 330 ft.
Montana Headlight Oil Co. No. 9 Yunck, NE SW NW sec. 1-34n-6w. Drlg. 2,400 ft.
Texas Co. No. 1 Curren, C SE SE sec. 5-32n-5w. Drlg. 2,795 ft.
Lawler-Hoer No. 2 Downen, SW SE SW sec. 9-33n-5w, Drlg. 2,530 ft.
Indian Oil Co. No. 3 Haglund Sr., C SW NW sec. 13-34n-6w. Drlg. 2,800 ft.
R. C. Tarrant No. 6 Long-Miller, C SW NW sec. 24-34n-6w. T.D. 2,290 ft.; drlg. up bailer.
Drumheller Oil Trust No. 1 fee, C NE SW sec. 17-34n-6w. T.D. 2,725 ft.; fshg. bailer.
A. R. Pardee No. 1 Anderson, C SE SW sec. 31-32n-5w. S.D. 2,900 ft.

Outside Cut Bank

W. E. Ullman No. 1 Allotted, C SW sec. 35-36n-8w. Drlg. 4,050 ft.

Hill County

Nadeau Bros. No. 1 O'Neal, NW NW NW sec. 34-32n-17e. Drlg. 1,300 ft.

Judith Basin County

Fletcher E. Hunt No. 3, NW SE NE sec. 30-14n-15e. Drlg. 1,721 ft.

Park County

Ben W. Ryan et al No. 1 Brugess, SE SW NW sec. 28-2s-11e. Drlg. 830 ft. after installing heavier equip.

Petroleum County

O. B. Canfield No. 1 Govt., CEL SE NE sec. 21-17n-24e. Drlg. 765 ft.

Roosevelt County

John W. Schmidt et al No. 1 Freu, NW NW NE sec. 21-28n-50w. Drlg. 700 ft.

Toole County

The Kevin-Sunburst field had three completions, of which one was a gas well, and four new operations.

The Consolidated Gas Co. No. 2 Lutz, C SE NE section 33-33n-2w, was completed in the Sunburst at 1,475-1,519 feet for 12,800,000 feet of gas.

A. H. Blaze No. 6 Burwash, SW NW SW section 15-34n-1w, made 2 bbls. per day from the Sunburst sand at 1,005-25 ft.

A. E. Crumley & Son No. 10 Fryberger, SW NE SE section 24-35n-3w, was better than the average and made 150 bbls. per day from the contact at 1,590-91 feet. It had only 200 feet of oil in the hole before acidizing.

A. E. Crumley No. 11 Fryberger, SE SE NE sec. 24-35n-3w. Spdg. (first report).
Plotke & Rader No. 11 Fryberger, NW SE SE sec. 29-35n-3w. Drlg. 200 ft. (first report).
Fred Munger No. 1 Haggerty, SE NE SE sec. 14-35n-2w. Drlg. 770 ft. (first report).
Wm. M. Fulton No. 2 Thompson, SW SE NW sec. 28-35n-3w. Spdg. (first report).
H. F. Patterson No. 2 Elwell, NE SE NW sec. 22-35n-3w. Drlg. 1,170 ft.
Hamilton & Hamilton No. 4 Reeg, SE SW SE sec. 14-35n-2w. Drlg. 210 ft.
Gray Superior No. 4 Aronow, NE SW SW sec. 12-35n-3w. T.D. 983 ft.; rng. 8¼-in.
Rice Oil Co. No. 1 Larson, NW NW NW sec. 18-35n-3w. T.D. 1,445 ft.; cmtd. 7-in.; W.O.C.
Vander Pas & Montgomery No. 1 Thumm, NW SW NW sec. 33-35n-3w. Drlg. 840 ft.
Henry Vander Pas No. 1 Ward, SE SE NE sec. 28-35n-3w. Drlg. 1,665 ft.
Treasure State Oil Co. No. 5 Shaw, NW SE NE sec. 35-36n-2w. Drlg. 1,555 ft.
Guy Smith No. 1 Govt., C NE SE sec. 35-36n-3w. Spd. 10 ft. and S.D.
G. & A. Oil Co. No. 10 Goeddertz, NE SW SW sec. 23-35n-3w. Drlg. 1,605 ft.
Pfabe & Engleking No. 1 Innerberg, NW SE SE sec. 26-35n-4w. T.D. 2,061 ft.; contact 2,060 ft.; rng. 4¾-in.
M. W. Cassidy No. 1 Mary, CEL NE NW sec. 5-34n-3w. Drlg. 1,555 ft.
Welch Bros. No. 1 Ward, C SE NE sec. 29-35n-3w. T.D. 1,770 ft.; contact 1,767 ft.; acid.; tstg.
C. T. Olen No. 7 Engemoen, C NW NW sec. 14-35n-2w. T.D. 1,607 ft.; contact 1,591 ft.; stdg.
C. L. Tomlinson No. 1 Davidson, NW NE SE sec. 25-35n-3w. S.D. 1,500 ft.
E. O. Reickhoff No. 3 Baum, SW SW SE sec. 3-35n-3w. S.D. 110 ft.
California Co. No. 7 Neumann, NW NW NE sec. 23-35n-2w. T.D. 1,300 ft.; fshg.
McCurdy No. 1 Hollowell, C SE SW sec. 1-35n-3w. Drlg. 1,530 ft.
Capitol Oil Co. No. 1 Pace, C SE SW sec. 27-36n-1w. T.D. 3,250 ft.; fshg. tools.
Bryant Bros. No. 1 Lashbaugh, NE SW NW sec. 34-25n-2w. T.D. 850 ft.; R.U. heavier mach. to resume.

Outside Kevin-Sunburst

Model Oils, Inc., No. 1 Fey, NE SW sec. 5-37-3w. T.D. 2,100 ft.; cmtg. off W.
Montana Gas Corp. No. 2 Clark, C SE SW sec. 24-37n-1w. Spdg. (formerly Coolidge & Coolidge).

Yellowstone County

Riverton Oil Co. No. 1 Fox, CEL NW NE sec. 14-2n-23e. S.D. 1,208 ft. for csg.; 2,000,000 ft. of gas at 1,207 ft.
Broadview Dome Oil Co. No. 1, NE NE SW sec. 18-3n-23e. Drlg. 2,750 ft. (C.D.) in Morrison; S.O. in Cloverly.
Laurel Oil Co. No. 1, C NW SW sec. 7-2s-24e. Drlg. 150 ft.

Estimated Daily Production

Average daily production in the week ending October 2. was as follows:

WYOMING

	Bbls.
Salt Creek	16,930
Big Muddy	1,350
Badger Basin	140
Black Mountain	220
Byron	320
Dallas Derby	570
Dutton Creek	50
Elk Basin	80
Frannie	810
Garland	2,460
Grass Creek	1,220
Hamilton dome	1,520
Hidden dome	360
Hudson	320
LaBarge	1,040
Lance Creek	11,970
Lost Soldier	1,280
Medicine Bow	5,310
Mule Creek	140
Midway	10
Oregon Basin	7,840
Osage	720
Pilot Butte	20
Quealy dome	810
Rock River	2,300
South Casper	510
Poison Spider	490
Teapot	20
Wertz	300
Waugh dome	160
Total Wyoming	59,270

MONTANA

Border	90
Cat Creek	570
Cut Bank	10,600
Dry Creek	420
Kevin-Sunburst	5,070
Lake Basin	20
Pondera	1,570
Total Montana	18,340

COLORADO

Florence	210
Fort Collins and Wellington	280
Iles dome	2,850
Moffat	420
Orchard	50
Rangely	80
Tow Creek	160
Price	610
Total Colorado	4,660

NEW MEXICO

Cooper	5,960
Eaves	1,080
Eunice	31,360
Hardy	1,490
Hobbs	19,050
Jal	1,190
Langlie	2,290
Lynch	770
Lynn	320
Mattix	2,130
Monument	33,020
North Lynch	60
Penrose	3,730
Rhoades	120
Skelly	1,640
South Eunice	2,220
Vacuum	20
Artesia-Maljamar	6,820
Getty	200
Hogback	200
Rattlesnake	810
Table Mesa	80
Total New Mexico	114,560
Total Rocky Mountain region	196,830

UTAH

Carbon County

Kelly Young No. 1 NE NE SE sec. 30-14s-10e. Drlg. below 1,100 ft.

(Continued on Page 293)

Southwest Texas District

By GEORGE WEBER

MAVERICK COUNTY MAY GET NEW POOL NEAR EAGLE PASS

HOUSTON, Tex., Oct. 4.—The attention of Southwest Texas oil operators was diverted to a new section of that district this week. The outstanding discovery occurred in Maverick County, northeast of Eagle Pass, and near the Rio Grande River. The test, Wellington Oil Co. No. 1 Chittim flowed from the Edwards lime, and following acid treatment, is expected to bring in a new oil field.

Other areas shared in new development during the week. The Fault Zone gained another field, located in Bastrop County. Frio County, at the lower southwest end of the Fault Zone, has a showing in the chalk. In the lower coastal section and Laredo district, important fields were extended, and in the Jackson trend, particularly Live Oak and McMullen counties, a number of new wildcats have been staked and a new field is being rapidly extended. Lower Rio Grande Valley activity centered in Starr and Hidalgo counties, with interesting developments in both.

The Wellington Oil Co. No. 1 Chittim bids fair to add another major discovery to the string accredited to that company. In the semiwildcat, located in Block 7, of section 129, 3,000 feet east of the old Chittim gas field, the first show was encountered several days ago when the test tried to blow out while operators were setting casing at 3,287 feet.

At 3,250-60 feet, 3,260-72 feet and 3,272-85 feet fractured lime, with live oil in the fractures, was cored, and when the well tried to blow out after the last core, a shut-in casing pressure of 700 pounds was built up. The test was carried to a total depth of 3,287 feet, and after swabbing it flowed at the rate of 10 bbls. per hour for seven hours through a three-eighths inch tubing choke, through separator and into tanks. At the end of seven hours it ceased flowing, and casing pressure built up to 350 pounds. Operators ran swab in the tubing, which had been run to 3,284 feet, and the well again flowed at the same rate as before until 10 a.m. the next day, then again "went dead." After again swabbing the well started flowing, making mostly oil and gas. It has been shut in and operators will acidize in an attempt to complete it as a flowing well.

First to Go to Edwards Lime

The discovery is in the Edwards lime, topped at 3,034 feet. The Chittim area, from the gas field, and extending in a southeasterly direction, consists of a large anticline, which has been known for several years. Tests have been drilled, most of which encountered oil showings, although failing to result in production. The Wellington test, however, is the first to go to the Edwards lime. Wellington holds a block of 275,000 acres on large ranches of the area in Maverick County.

New Prospect in Frio

To the east, in Frio County, another wildcat showed possibility of opening new production Pagenkopf & Jamieson No. 1 Houston Estate. It is in the Juan Figuerroa Survey in the northwest corner of the county, 6,700 feet east of the Frio River, and east of the same operators' No. 1 Blackaller, abandoned several months ago. The wildcat encountered the top of the Austin chalk at approximately 2,600 feet and a good showing was had at 2,601-03 feet. Operators reamed to a total depth of 2,651 feet and set 7-inch casing at 2,480 feet to test.

Bastrop County, to the northeast of Frio and Maverick, and in the heart of the activity now centering in the Fault Zone, added a field when Hantho-Nelson, Inc. No. 1 Litton was completed for an initial production of 256 bbls. per day on the pump. The wildcat looked like a potential discovery for several weeks, but its completion was delayed pending acid treatment and reworking. The new field, as yet unnamed, is about 2½ miles east of Cedar Creek, on a 71-acre tract in the Addison Litton Survey. The Austin chalk was topped at 1,972 feet and the Edwards lime at 2,515½ feet.

The No. 1 Litton found oil showings in the Austin chalk in August, and after failure to complete, was carried to the Edwards lime. It was plugged back from a total depth of 2,517 feet to the present producing horizon at 2,132 feet in the chalk. Gravity of the oil averages 42 degrees.

Corpus Christi District

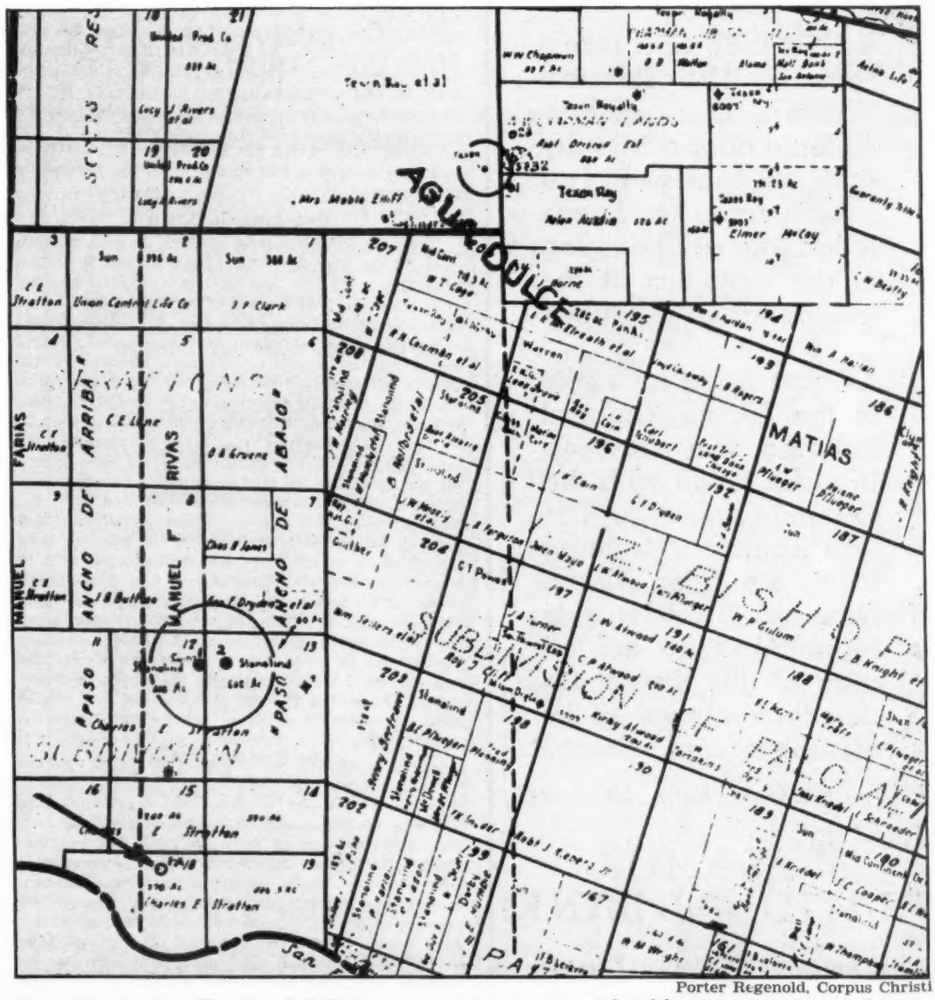
The Lower Gulf Coast strip comprising the Corpus Christi district saw few important developments during the week, although it is the most active area in Southwest Texas. The McCampbell field of Aransas County is one of the busiest in the area. Operations are directed chiefly to the deeper 7,100-foot sand, and an interesting deep test is being drilled on the eastern edge of the field by the Atlantic Refining Co.

San Patricio County wildcats fared poorly, with one test abandoned southwest of the McCampbell field, and a second testing salt water. The latter, Danray Oil Co. No. 1 Davis, in the Gregory area, was long a mystery well, attracting considerable attention. Casing set at 7,117 feet was perforated last week at 7,080-90 feet and salt water was recovered.

Nueces County developments were shared by two small fields, Luby and Stratton. In the former field Stanolind Oil & Gas Co. No. 2 McCann was brought in making a slight south extension to the field. The Camp Production Co. No. 1-A Stratton (Wardner) is attempting to complete in a new sand at 6,500-05 feet. The test, located in the extreme southwest corner of Nueces County, and 7,500 feet south southwest of oil production in the field, is bottomed at 6,521 feet and is cleaning into pits at latest reports.

Saxet, the most active field in Southwest Texas, has another blowout this week. The Greta Oil Corp. No. 2 Bliss blew out at 6,956 feet and is running wild through surface casing set at 1,520 feet. Operators expect the wild well will be shut in shortly. Surface casing has prevented its cratering.

Two wildcats attracted attention in the Laredo dis-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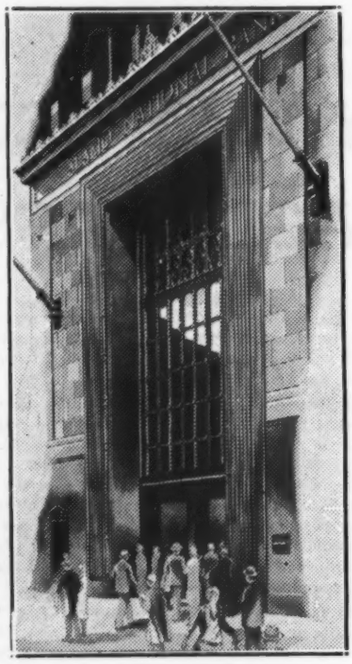

OIL MEN

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trict during the past week. In Webb County, Adams and LeFevre encountered another sand at 1,860-66 feet which showed oil, but were drilling ahead at late reports. The Duval County test of importance is Cox & Hamon No. 1 California-Peters, 1½ miles north of Rancho Solo in the Kohler district. A drill stem test at 1,829-38 feet showed 300 pounds working pressure and 10 feet of drilling mud in 10 minutes, and operators later cored a sand with odor of oil at 1,838-42 feet. A lower sand showing oil at 1,882-98 feet tested salt water, and operators are running casing to attempt completion in the upper sands.

Lower Rio Grande Valley

The Lower Rio Grande Valley is showing somewhat increased drilling activity, mainly due to the La Blanca field of Hidalgo County and the Ricaby field of Starr County. In the latter pool Dean Brothers No. 1 Valadez is a possible discovery well of a new sand. The test set casing at 1,872 feet and perforated at 1,868-72 feet. Operators reported 1,200 feet of fluid in the hole, mostly oil, and plan to put the test on a pump.

La Blanca field operations consist of three tests, with a fourth drilling in a wildcat location to the south. During the week, the Gulf States Oil Co. No. 2 Delta Orchards encountered broken sand at 1,608-1,720 feet which showed high pressure gas. The shallow sand has been charged by the cratering of the Pantana well which blew out several months ago in the area. Cement was pumped into the hole at 1,642 feet and it was abandoned, operators moving over to drill No. 2-A Delta Orchards.

Live Oak and McMullen counties are due for extensive exploration, as a dozen wildcat tests are staked for the area. Several have already spudded. The Ezell field has been extended from McMullen County across into Live Oak County, in a highly subdivided sector, and increased drilling is expected as a result.

California Fields

(Continued from Page 280)

pletion of No. 3, which picked up the top of the productive Vedder zone at 1,527 feet. Desert Glow Oil Co. completed No. 2 in section 14-27-27 at 1,232 feet with 56 feet of 9⅝-inch liner including 42 feet of perforated and is bailing. Union Oil Co. which recently completed No. 12 Tribe as a commercial producer in section 28-27-28 has just spudded in No. 2-B Tribe in the same section and should reach the pay within two weeks.

San Joaquin Basin

In the Fruitvale field of Kern County, Western Gulf Oil Co. completed No. 8 Red Ribbon in section 27-29-27 flowing 682 bbls. of 16.8-gravity oil per day from 3,456 feet after finishing the hole with 115 feet of 6⅝-inch liner including 89 feet of 120-mesh landed at 3,454 feet. It was brought in flowing under a tubing pressure of 50 pounds and a casing pressure of 820 pounds. Western Gulf Oil Co.'s next two drilling projects in the Fruitvale field will be No. 28-B Kern County Land in section 14-39-27 and No. 9 Red Ribbon in section 27-29-27 as new rigs have been erected for both. A new well was completed in the Edison field for the first time in several months when Monterey Exploration Co. completed No. 17 Duff early in the week pumping 101 bbls. of 14.9-gravity oil cutting 7 per cent daily from 1,870 feet after the hole had been carried down to 1,929 feet and then plugged back to the completion depth. This new well was finished with 86 feet of 6⅝-inch liner including 71 feet of 200-mesh. This company has just about completed rigging up rotary drilling equipment on No. 2 Nichols in section 14-30-29 and an early spud is anticipated. Wood-Callahan Oil Co. has picked up the deep pay in No. 1 Harvey in section 21-30-29 at 3,209 feet and should have this potential producer tanking oil shortly.

Los Angeles Basin

In the Rosecrans field of Los Angeles County, Barnsdall Oil Co. has completed No. 16 O'Dea flowing 318 bbls. of 28.9-gravity oil per day from 6,741 feet. This well was carried down to 7,881 feet but was plugged back, and the 7-inch casing perforated at 5,998-6,535 feet. It is flowing through a 45/64-inch bean, tubing pressure 40 pounds, casing pressure 350 pounds. Union Oil Co. has two wells drilling to this zone. Exeter Oil Co. and Universal Consolidated have so far failed to find substantial production. A. N. Macrate No. 2 Gray has reached a depth of 7,862 feet and while the bit is in the pay this is somewhat deeper than anticipated and the sand does not look very good.

In the Dominguez field, Union Oil Co. completed No. 47 Heilman flowing 149 bbls. of 27.6-gravity oil per day on gas lift from 6,700 feet. In the Huntington Beach field, Standard Oil Co. completed No. 15 Thomson pumping 186 bbls. of oil and 4 bbls. of water per day from 3,802 feet, finished with 76 feet of 6⅝-inch including 32 feet of perforated, landed on bottom. In the East Coyote field Tide Water Oil Co. recompleted No. 42 Anaheim, pumping 70 bbls. of 19.2-gravity oil daily after the hole had been redrilled and deepened to 3,650 feet. Production was cutting 12 per cent at last reports. In the Long Beach field the Twentieth Century Oil Co. recompleted No. 3-1 Signal pumping 26 bbls. of 24.4-gravity oil per day from 3,730 feet. In the Torrance field E. H. Grubb recompleted No. 3 Redondo pumping 41 bbls. of 16.9-gravity oil cutting 10 per cent after plugging back the hole to 4,747 feet. Six major companies have acquired fee title to 1,300 acres of potential oil land about 1 mile northwest of present production. This acreage was purchased on the assumption that a Schist ridge extends all the way from El Segundo to Playa Del Rey and that it will be found productive along its entire length.

Oklahoma Fields

(Continued from Page 276)

Co. No. 6 Reed, SW NE SW section 14-8-6, an old well bottomed at 4,334 feet, cleaning out on bottom.

Noble County

Phillips Petroleum Co. and Shell Petroleum Corp. No. 4 Hackett, SW SE SE section 21-23-2w, south side of the Billings pool, Noble County, found Wilcox sand at 4,319 feet, was bottomed at 4,333 feet and flowed 2,379 bbls. of oil in six hours and 45 minutes through casing. On potential test, it flowed 1,015 bbls. of oil in six hours through tubing and made potential of 4,229 bbls., with 3,276,000 feet of gas.

Continental Oil Co. No. 12 Conway, SW SE SW section 16-23-2w, was digging cellar. Stanolind Oil & Gas Co. and Amerada Petroleum Corp. No. 2 Henn, SW SE NE section 32-20-2w, was a location.

Logan County

Sinclair Prairie Oil Co. No. 1 Ford, SW NW SE section 12-17-1w, Langston area, Logan County, topped first Wilcox sand at 5,037 feet, was bottomed at 5,087 feet, flowed 175 bbls. of oil in six hours and made potential of 432 bbls., completed.

Mid-Continent Petroleum Corp. No. 2 Bulling, SE NE NE section 5-19-2w, southwest edge of the Lucien pool in Logan County, was bottomed at 5,100 feet, plugged back to 5,097½ feet, was shot, bailed water and a scum of oil, and was dry and abandoned.

Sinclair Prairie Oil Co. No. 1 Knecht, C N half S half NE section 28-18-4w, was location for a wildcat.

Grant County

Carter Oil Co. and associates were digging cellar at No. 1 Booker, C W half NW SW section 16-25-3w, second operation in the new Lamont area recently opened in southeastern Grant County.

Kay County

E. J. Shaffer and associates No. 1 Smith, NW NW SE section 8-28-1w, was a cellar. It is an east offset to the same operators' Wilcox sand discovery well south of the old Braman pool in Kay County.

Lincoln County

Skelly Oil Co. No. 1 Erwin, NE SW SW section 35-15-2e, was location for a test in the North Wellston area, Lincoln County.

Osage County

Ray Branstetter No. 2 Osage, NE NW NW section 33-22-11, Osage County, had Arbuckle lime at 2,040-62 feet, total depth, was acidized and pumped 25 bbls. of oil daily, completed.

Lewis Production Co. had the largest Osage County producer of the week at No. 3 Osage, NE NW NW section 34-24-7, Naval Reserve field. It had Bartlesville sand at 2,643-90 feet, total depth 2,701 feet in shale, was shot and pumped 136 bbls. of oil daily.

Sinclair Prairie Oil Co. No. 14 Osage, NW SW SW section 30-25-8, had Mississippi chert at 2,457 feet, total depth 2,487 feet, plugged back to 2,474 feet, was shot and swabbed 20 bbls. of oil daily.

Coralena Oil Co. No. 1 Osage, SE NE SE section 29-24-7, found Bartlesville sand at 2,580 feet, total depth 2,665 feet, and was dry and abandoned.

W. C. Norris No. 8 Osage, SW NE SE section 24-25-8,

an old well, was deepened from 1,800 feet to Burgess sand at 2,360-80 feet, and pumped 10 bbls. of oil daily, recompleted.

Carter Oil Co. No. 13 Osage, NW SE NW section 15-25-6, South Burbank area, had sand at 1,959-2,038 feet, and was completed as a salt water disposal well at 2,034 feet, total depth, in shale.

New operations in Osage County: E. O. Platter No. 7 Osage, SE SE NW section 13-21-8, location; Lewis Production Co. No. 5 Osage, SW NE NE section 20-24-7, location; Sinclair Prairie Oil Co. No. 6 Osage, NW SW NW section 22-25-6, location; same company's No. 7 Osage, SW NW NW section 22-25-6, location; Link Oil Co. No. 2 Osage, NW NE NE section 34-25-9, location.

Tulsa County

Somerset Oil Co. No. 2-A Withers, C S half SW SW section 25-17-12, Glenpool area, Tulsa County, was rigging up machine.

Okfuskee County

Panther Oil Co. No. 4-A Smith, C W half NE NE section 11-11-11, Okfuskee County, was drilling at 1,165 feet. Sand Springs Home No. 1 Buckley, NW cor. section 12-12-11, was drilling at 470 feet. Alexander No. 2 Grimes & O'Neil, SE NE NE section 35-11-9, was rigging up machine. United Production Co. No. 1-A Rentie, SW cor. section 24-12-11, was drilling at 1,850 feet.

Okmulgee County

W. D. Coyle No. 10 Gardner, NW SE SW section 33-14-14, an old Okmulgee County well, was dry and abandoned after deepening from 1,663 feet to 1,874 feet, total depth.

Pitts, Hassey and others No. 1-A Tucker, NE SE NW section 35-14-11, was shut down for water at 900 feet, total depth.

Coal County

Carter Oil Co. and Gulf Oil Corp. No. 1 Buck, C E half SE SW section 6-1n-8, in Coal County and east of Jesse, found Hunton lime at 3,981 feet and was bottomed at 4,002 feet. After acid treatment, it flowed 112 bbls. of oil net in two hours and 40 minutes, and later flowed 215 bbls. of oil in 23 hours through tubing, completed.

Continental Oil Co. No. 1 Wade, C E half NW NW section 7-1n-8, was a location. Choctaw Oil & Gas Co. No. 1 Myers, C W half SW SE section 6-1n-8, had dug cellar and pits.

Garvin County

Cox & Hamon No. 3 Perry, NW SE SW section 32-1n-3w, Tussy pool, Garvin County, swabbed 220 bbls. of oil in 18 hours and pumped 200 bbls. of oil in 24 hours. It was completed at 3,204 feet, total depth.

Carter County

Amos Drilling Co. No. 1 McCrory, NE NW NW section 5-1s-3w, Carter County side of the Tussy pool, had pay at 3,281-3,301 feet and 3,330-50 feet, total depth 3,521 feet, plugged back to 3,350 feet and pumped 110 bbls. of oil in 24 hours.

Carter Oil Co. No. 2 Junior Perkins, SW NE SE section 4-1s-3w, was dry and abandoned at 2,805 feet, total depth.

New activity in Carter County: Carl Carter No. 1-A Harley, tract 3, CSL N half SW section 19-2s-3w, drilling at 200 feet; Kewanee Oil & Gas Co. No. 18 Willis, SE SE NE section 6-4s-3w, pits; Sinclair Prairie Oil Co. No. 14 Holman, SW NE NW section 16-4s-3w, rigging up machine; Rockland Oil Co. No. 58 Sarasota, NE SW NW NE section 23-4s-3w, rigging up machine.

Stephens County

George L. Pace and others No. 3-C Huston, C W half NW SW section 2-2-8w, Stephens County, was dry and abandoned at 2,690 feet, total depth.

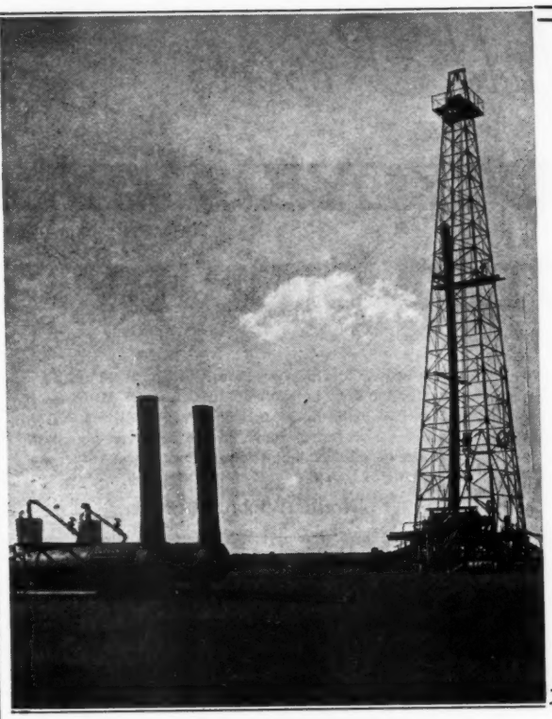
Scattered New Work

In Caddo County, Magnolia Petroleum Co. had dug pits at No. 6 Sames, SW SW NE section 35-6-10w.

Three new operations were reported in Jefferson County. Hubble & Wilson No. 1-A Trout, SE SE SW section 19-6s-5w, was building derrick. Farlyn Oil Co. No. 54 Seay, SE SE SW section 3-7s-5w, was a location, and same company's No. 55 Seay, SE SE SW section 3-7s-5w, was drilling at 750 feet.

In Love County, Sinclair Prairie Oil Co. No. 1 Peabody School, NE cor. section 35-6s-2w, was location for a wildcat. It was to be a 9,000-foot test.

Central Oil Corp. had dug cellar and pits at No. 1 Lamb, SE cor. section 27-14-21w, wildcat northwest of Hammon in eastern Roger Mills County.



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Michigan Field Report

By
O. C. PRESSPRICH

BUCKEYE AREA DEFINED ON WEST SIDE BY 2 DRY HOLES

SAGINAW, Mich., Oct. 4.—In the Buckeye Township area of Gladwin County, two remote western outpost tests of the north (Wicklund) pool and the south (Oard) pool came in dry the past week, apparently establishing western markers of the two fields.

While the two wildcats apparently set out the danger signal against further western tests, the south (Oard) pool forged ahead with several favorable gap-closing wells, between the south pool proper, as it was formerly defined, and the midway pool launched recently by Hanners Development Co. No. 1 Armstrong in section 23.

The western edge test of Sun Oil Co. No. 1 Henderson in the NE NW SE section 4, also a northwestern test, blasted the hopes of operators for a continued westerly trend of favorable producers in the north pool. The horizon was found 30 feet lower than in Mammonth Producing & Refining Co. No. 1 Woods producer, two locations east and one location south. Plugging and abandonment orders were issued. While the northern pool's western test chalked up a failure, a similar fate was recorded at Louis Rose No. 1 Peters, NE SW SE section 34, a remote western outpost in the Oard pool, seven locations from the nearest producer. It was the only production effort so far in section 34, and may be the last for some time to come.

As western edge tests proved failures, a possible eastern extension of Buckeye's northern pool into Hay Township, about half a mile from Buckeye, loomed at Dibble Brothers No. 1 Kimball in the SW SE NW section 16. The well was reported as drilling ahead in the Dundee after a three-day shutdown, and a show of oil was logged as the well progressed. Several Hay Township locations are pending, depending on the show made by the Dibble-Kimball well.

South (Oard) Pool

As both Buckeye pools divided interest in furnishing boundary marker tests, the south pool grasped the major share of production interest with favorable producers on its northwestern and western boundaries, extending to nearly its southern limit. The week's producers did more than any for several weeks in cementing the bond between the so-called midway pool to its north, and the south (Oard) pool proper. Four definite producers indicated the bond existing between the midway and south pools, which are gradually being merged into one as new production continues.

Topping the list of gap-closers was Rex Oil & Gas Co. No. 1 Arkwright in the SW NW NE section 35, which logged an initial production of 600 bbls. The well was not only a northern extension of section 35 production but a western extension of the south pool, being two locations from its nearest producing neighbor to the east. Further north of the Rex-Arkwright well, in section 26, three wells gave promise of closing other parts of the gap. They included the Swanson-Big Three Oil Co. No. 3 Fritzwater in the NE NE SE section 26; M. S. Jorgenson No. 1 Foster in the NE NE NW section 26, and Bell & Mark No. 1 Ruck in the NE NW NW section 26. The Swanson-Big Three well was rated a 200-bbl. daily producer, while the Bell & Marks well was preparing to drill in with all indications favorable.

Both the Jorgenson and Bell & Marks wells were important as being northwestern developments in section 26, removed from western extension development in that section. The Jorgenson well is three locations south of the Hanners Development Co. No. 2 Armstrong, and four locations south of Hanners "tattle-tale" well, which opened the midway pool. Several locations were opened by the two wells, considered among the most important of south field developments in some time.

Bell & Marks added another producer to the south pool, which is pushing westward with their No. 2 Arkwright in the NE SW NE section 35. The well was one of the best of the past week in the south pool, with a gauge of 400 bbls. naturally. Further south, M. Bauman prepared to bring in No. 2 Nash, NW SW SE section 35. The quarter-section borders on the southern boundary of Buckeye, and all indications were favorable for production.

North (Wicklund) Pool

An enigma of the past week in the north pool was presented by Sun Oil Co. No. 4 Ockerman in the NW NW SW section 10, which opened with approximately 500-bbl. initial production and then dropped off sharply. Acid was used, but instead of responding as expected, swabbing and cleaning failed to reopen the well, and operators are doing further testing. No. 5 Ockerman, an offset, is to be completed soon. Sun Oil Co. also was going deeper in its No. 1 Card in the SW SE NW section 10, after logging a hole full of oil earlier in the week. The same company's No. 8 Salla, SW SW SW section 11, also was being completed with favorable indications.

Eight wells are reported drilling below the Dundee cap in the vicinity, but all of them are located well inside proved territory.

Socony-Vacuum Oil Co. No. 5 L. Dailey, in the SW SW NE section 12, developed production of 200 bbls. initial production while American Drilling Co. No. 2 Soldan in the NW SW SE section 12, was brought in for 1,500 bbls., with the tools still in the hole.

Isabella County

Interest of the Michigan oil industry continues to be focused on the Nottawa Township wildcat in Isabella County, with developments seeming to warrant the interest shown since Boston Oil & Gas Co. No. 1 Clara Fox, in the NE NE NE section 23, filled with oil. Caveins and a bent packing rod impeded operations, with the results that the casing has been pulled and the well recemented. Further testing of the well is in order. No acid has been used. The well made two flows the past week, one of 50 bbls., and the other of almost as much. On pump the well may develop into a commercial producer, experts said.

In the Sherman Township field of Isabella County, Pure Oil Co. No. 9 Willie in NE NW NE section 4, passed up a large flow of natural gas and was drilling past 1,500 feet in a test for oil. Large natural gas deposits were encountered in the Michigan Stray sands. The well is on the north edge of the Broomfield gas area, but was slated for oil testing. There are four producing gas wells in the same section.

Gladwin—Beaverton

Mammoth Producing & Refining Co. No. 1 Nunn, NW NE NW section 18, Beaverton Township, failed to find a trace of commercial production in the Dundee limestone, and was listed for abandonment. The hole is approximately 3 miles west and 1 mile south of the nearest producing well in the area, and has been closely watched by operators as a possible extension of the Beaverton field.

Arenac County

Arenac added a highly favorable producer (after acid) to its Clayton Township field when Weber Oil Co. No. 1 Dodge in the NW SE SW section 4, developed more than 1,000 bbls. daily production. The well is the most western producer in the field, and was completed a week ago with a natural initial of 250 bbls. Possible extension of the field to the west is indicated by the producer.

Hurry Drilling Programs

Heedful of winter's approach, with resultant impassable roads, higher drilling costs and other handicaps, Michigan oil operators are rushing their drilling programs, especially in unexplored areas of the state. This is evidenced by the week's list of drilling permits issued by the state conservation department, showing licenses issued for 26 wells, of which eight are distinctly wildcat and five are for important edge tests.

The 1937 total of permits to date stands at 758, as compared with 777 issued in the whole of 1936.

On the northwestern edge of the Sherman field in Isabella County, Pure Oil Co. is preparing to drill No. 1 Benjamin F. Cornell, in section 33, two locations distant from production. In the same township, but in section 32, McClanahan Oil Co. will drill on its Susan Terry lease, a western edge test two locations removed from production. In Denver Township of the same county, section 20, Arthur Morris has located his No. 1 Lawler, an eastern edge test of the Denver field. Two edge tests also are scheduled for the West Branch field in Ogemaw County, and Wittmer Co. is preparing to drill in section 2 of Lincoln Township, Clare County, on its Palomar Realty Co. lease.

Weber Oil Co. has been granted a permit to drill on the Bernard Uebler farm in section 9, Frankenmuth Township, Saginaw County. There is a dry hole a mile east and two of them a mile to the northwest. Sun Oil Co. has staked another location in Edenville Township, Midland County, three-fourths mile north of its dry No. 1 Consumers Power Co. hole. Another wildcat is the No. 1 Charles W. Kenyon in section 18, Grim Township, Gladwin County.

Evidence of the magnitude of Michigan's third largest industry—oil and gas production—is revealed by the number of active oil and gas operators in Michigan's numerous fields. Counting only operators and companies which are now drilling or have projects under way, there are 295 busy exploring Michigan's depths for its oil and gas resources. Of this number only 37 operate their own string of tools, the rest having their drilling done by contractors.

New Record for Severance Taxes

Michigan counties and townships which produce oil and gas are receiving from the state treasury this week checks representing their share of the state's 2 per cent severance tax for August, which set an all-time record in that month at a total of $45,728. This tax was collected on 1,793,846 bbls. of oil valued at $2,231,136, and 379,666,876 feet of gas valued at $55,296.

The severance tax is collected by the state and split monthly on a basis of 40 per cent to the state, 20 per cent to the county and 40 per cent to the townships, prorated according to each township's production. The previous high of the severance tax was $39,801 in May, 1937.

The 14 counties in the production and tax lists, their August production of oil and gas and the tax collected in each:

	Oil bbls.	Gas M. cu. ft.	Tax
Allegan	31,724	.....	$789.00
Arenac	126,289	.....	2,753.00
Clare	.....	4,002	9.40
Gladwin	836,657	.....	21,085.00
Gratiot	.....	23,141	69.00
Isabella	260,280	28,546	6,700.00
Mecosta	.....	111,483	333.00
Midland	387,727	10,276	9,856.00
Monroe	836	.....	21.24
Montcalm	52,906	159,281	2,133.00
Muskegon	6,484	42,934	254.00
Ogemaw	84,675	.....	1,845.00
Saginaw	6,364	.....	174.00

A newly completed map of Zapata County, Southwest Texas, has been released by Porter Regenold of Corpus Christi, Tex. It is drawn to a scale of 4,000 feet to the inch, including all oil and gas development, ownership and leasing data brought up to date.

Central West

By STAFF CORRESPONDENT

FAIR SIZED WELLS AND DRY HOLES RESULTS IN ILLINOIS

MATTOON, Ill., Oct. 4.—Nothing sensational occurred among the Illinois completions of the past week in review. Fair sized wells were completed in Clay and in Marion County. A 3,040-foot dry hole was completed in Wayne County and two deep wells in Richland County were disappointments. One of them, drilled to 3,252 feet, was dry and abandoned and the other was not looking promising after an acid treatment and a nitroglycerin shot at 2,952-58 feet.

Another outlet for crude is promised by the Pure Oil Co., with its projected Wabash pipe line which will serve the Clay and Richland area when it is built later in the year.

Completions

The week's completions in Marion County, with their sand records and initial production, included Adams Oil & Gas Co. No. 2 Boyd, C E half SE SE section 20-4n-1e, sand at 1,415-35 feet, 75 bbls.; Adams Oil & Gas Co. No. 7-A Wasem, SE cor. SW NW section 28-4n-1e, sand at 1,438-48 feet, 80 bbls.; Reynolds and others No. 1 Eager, SW cor. NW SE SW section 28-4n-1e, sand at 1,443-53 feet, 50 bbls.; J. I. Staley No. 1 Public School land, SW cor. SE SE NW section 28-4n-1e, 50 bbls.; Vermilion Oil Co. No 1. Symcox, NE cor. NW SE SW section 28-4n-1e, 35 bbls. The Texas Co. No. 1 Wiggins, NE NE NW section 1-3n-2e, a wildcat, was at a total depth of 2,515 feet with no showing of oil, and is temporarily abandoned. St. Genevieve limestone was topped at 2,070 feet and McCloskey sand at 2,190 feet.

In Wayne County, A. Bruner No. 1 Kuyoth, NW cor. section 30-2n-8e, was dry and abandoned at 3,040 feet. St. Genevieve lime was topped at 2,962 feet.

Five wells were completed in Clay County.

Wiser Oil Co. No. 8 D. Smith, SE SE SE section 21-3n-8e, was abandoned at 3,016 feet. It had no showings of oil or water.

Pure Oil Co. No. 3 C. Wilkins, SE SW SE section 28-3n-8e, had pay at 2,972-76 feet, total depth 2,987 feet. It flowed 635 bbls. of oil in 24 hours.

Pure Oil Co. No. 4 Wilkins, NW SE SE section 28-3n-8e, flowed 500 bbls. the first 24 hours from pay at 2,972-75 feet and 2,976-78 feet, total depth 2,988 feet.

Pure Oil Co. No. 4 B. Travis, SE NW NE section 33-3n-8e, flowed 600 bbls. the first day from pay at 2,958-66 feet, total depth 2,987 feet.

Pure Oil Co. No. 5 B. Travis, NE NW NE section 33-3n-8e, started at 603 bbls. a day, flowing from sand at 2,958-59½ feet, total depth 2,997 feet.

In Richland County Pure Oil Co. No. 3 Walters, SW SE SW section 5-3n-9e, had the top of St. Genevieve lime at 2,910 feet, and the field pay at 2,952-58 feet. It was shot and later acidized. Put on the swab it brought up 20 bbls. of oil, but later swabbed 300 bbls. of water. It was shut down for orders. R. Neeley and others No. 1 Baughman, SE SE NE section 22-3n-10e, a wildcat, was dry and abandoned at 3,252 feet.

New Operations

First reports of new operations were 19 in number. In Marion County, Ralph Ayers and others No. 1 Vandeventer, NW SE SE section 18-4n-1e, was moving in material. Adams Oil & Gas Co. No. 3 Boyd, NE cor. SE SE section 20-4n-1e, was in saturated Benoist sand at 1,410-21 feet. Adams Oil & Gas Co. No. 1 Freyer, NE cor. SW NE section 21-4n-1e, was drilling at 1,245 feet. Adams Oil & Gas Co. No. 9-A Wasem, CSL SW NW section 28-4n-1e, drilling at 1,410 feet. Roberts and others No. 1 F. M. Smith, NE cor. SW SE section 28-4n-1e, derrick. Adams Oil & Gas Co. No. 1 Delay, NW NW NW section 33-4n-1e, drilling at 445 feet. Helmerich & Payne No. 1 Spencer, NE NE NE section 25-3n-2e, a wildcat, derrick.

In Effingham County, Kingwood Oil Co. and others had derrick up for No. 1, C E half NE NW section 26-6n-5e.

In Wayne County, Duncan Brothers had derrick up for No. 1 Riggs, NW NW SE section 27-2n-8e.

In Clay County, Pure Oil Co. No. 4 E. Chaffin, NE NW SW section 27-3n-8e, was a location; Pure Oil Co. No. 11 O. Poppe, SE SW NW section 27-3n-8e, and No. 12 O. Poppe, NE SW NW section 27, both cellar and pits; Wiser Oil Co. No. 10 D. Smith, NE SW NE section 28-3n-8e, cellar and pits.

In Richland County, Pure Oil Co. No. 3 Palmer-Taylor, SE SW SE section 5-3n-9e, had cellar and pits dug. Pure Oil Co. No. 1 J. J. Wilson, NW NE SW section 34-4n-9e, cellar and pits. C. R. Obermyer No. 1 B. Atkins, C S half NE section 3-6n-9e, derrick up.

In Jasper County W. R. Henderson had derrick up for No. 1 Hetzger, C E half NE SE section 10-7n-8e.

In Cumberland County, Jolly, Hill, Stipes and others spudded No. 1 Jenkins, SE NE NE section 30-10-9e, and were waiting for drilling cable.

In Clinton County, Cotton and others were moving in material for No. 1 Pearl Hestor, 1,300 feet from west and 320 feet from north lines of SW quarter section 26-3n-1w.

Over east in Indiana, Worthington Oil Co. was drilling below 466 feet in No. 1 Green, NE NE NE section 26-8n-6w, Greene County, and Carter Oil Co. was testing No. 1 Drake, C S half SW NW section 15-10n-10w, in Vigo County. It was at a total depth of 2,168 feet. The well had twice been treated with 1,000 gallons of acid at 2,138-39 feet and 2,151-60 feet but it swabbed only 60 bbls. gross in 24 hours. Yaw and Pierson were drilling at 700 feet in No. 1 Hulman, SW cor. NW SE SE section 7-11n-9w.

Drilling Progress

In Clay County, Gordon Oil Co. No. 1 Park, SE SE SE section 14-3n-8e, had Weiler sand at 2,630 feet and was drilling at 2,680 feet. Pure Oil Co. No. 2 Chaffin, SW NW SW section 27-3n-8e, found pay at 2,972-73½ feet, and was coring ahead from 2,975 feet. Same company's No. 3 Chaffin, NW SW SW section 27, set 10¾-inch pipe at 209 feet. Pure Oil Co. No. 2 Wilkin, SE SE SW section 28-3n-8e, was shut down at 2,890 feet to make repairs. No. 5-C Wilkin, NE SE SE section 28, set 10¾-inch pipe at 213 feet. Pure Oil Co. No. 2 A. Travis, NE NE NW section 33-3n-8e, set 10¾-inch casing at 227 feet, and was drilling at 1,220 feet. Pure Oil Co. No. 1 E. Weiler, SE SW SE section 33-3n-8e, old total depth 2,615 feet, was plugged back to 2,613 feet. The crew was fishing for liner. Pure Oil Co. No. 6 B. Travis, NW NW NE section 33-3n-8e, was drilling at 2,087 feet. J. C. Shaffer No. 1 Leibke, SE SE SW section 17-3n-7e, set 10¾-inch casing at 260 feet. Pure Oil Co. No. 1 Brissenden, SE NE NE section 8-2n-8e, had pay at 2,983-84½ feet, 2,986-88 feet, 2,997½-3,001½ feet, total depth 3,011 feet, and set 7-inch casing at 2,959 feet.

Pure Oil Co. No. 3 S. Bechtel, SE SE NW section 33-3n-8e, had well saturated pay at 2,935-63 feet and 2,964-69½ feet and was coring ahead. Pure Oil Co. No. 1 A. L. Moseley, SW NE NE section 33-3n-8e, was shot with 30 quarts at 2,975-82 feet. It was swabbed two days and recovered only 10 bbls. of oil. It may be acidized. The well had been drilled to 3,025 feet and plugged back to 2,982 feet. Pure Oil Co. No. 2 Moseley, SW SE NE section 33, was drilling at 2,760 feet. M. O. K. Corp. No. 1 Bemis, SE SE NW section 14-3n-8e, total depth 3,017 feet, was put on the pump and produced 20 bbls. of oil in 20 hours at the end of which time it had pumped off. It is shut down for orders. J. V. Wicklund was rigging up standard tools to complete No. 1 McCauley, SW SW SE section 23-3n-8e, which had tested salt and sulfur water at a total depth of 2,999 feet.

Pure Oil Co. No. 10 Poppe, SE NE SE section 28-3n-8e, had Weiler sand at 2,623-50 feet, and was drilling at 2,945 feet. Wiser Oil Co. No. 6 D. Smith, SW SW NE section 28-3n-8e, which tested 75 bbls. a day on the swab at a total depth of 2,981 feet, later flowed by heads and was being put on the pump for a production test. Wiser Oil Co. No. 7 D. Smith, NE NE NE section 28-3n-8e, was pumping salt water in an attempt to exhaust it. Wiser Oil Co. No. 9 D. Smith, SW NE NE section 28-2n-8e, had dolomitic lime pay at 2,871-75 feet and Oolitic lime at 2,962-65 feet, total depth 3,051 feet and was swabbing. Mammoth Producing & Refining Co. No. 1 Bemis, SE SW SE section 9-3n-8e, set 7-inch casing at 2,995 feet and was rigging up standard tools to drill ahead. Southern Illinois Petroleum Corp. was shut down at 1,150 feet awaiting fuel. Graham & Duncan were drilling at 1,870 feet in No. 1 Joint Stock Land Bank, SE SE NE section 8-2n-8e. Same firm's No. 2 on the lease, NE SE NE section 8, was drilling at 2,180 feet and No. 3 NW SE NE section 8, was drilling at 1,850 feet.

Pure Oil Co. No. 1 Schrugham, SW SW NW section 9-2n-8e, was drilling at 2,503 feet. Pure Oil Co. No. 2 Staley, SW NW SW section 9-2n-8e, recovered drill pipe lost at 2,940 feet and was at a total depth of 3,022 feet with 7-inch casing set at 2,962 feet. It had pay at 2,995½-98½ feet and at 3,019-22 feet, but it had not yet been tested. Leonard Brothers No. 1 Logan, SE SW NW section 2-3n-6e, a wildcat, had water at 2,638-50 feet and was coring ahead.

Richland County

Pure Oil Co. No. 2 Wilson, NE SE NE section 33-4n-9e, Richland County, was drilling at 2,967 feet; Mammoth Producing & Refining Co. No. 2 Stanford & Heltz, SE SW NW section 34-4n-9e, was drilling at 1,740 feet; Pure Oil Co. No. 2 Palmer-Taylor, SW SW SE section 5-3n-9e, was drilling at 2,855 feet; Ohio Oil Co. No. 3 Arbuthnot, NW NE NW section 8-3n-9e, plugged back from 2,975 feet to 2,920 feet, had a hole full of water at 2,940 feet and was shut down for orders. Same company's No. 4 Arbuthnot, NE NE NW section 8, had pay at 2,953-63 feet, total depth 2,966 feet and was running 7-inch casing. Illinois Petroleum Corp. No. 1 H. Allard, NW NW NW section 16-3n-9e, was drilling at 2,470 feet. Pure Oil Co. No. 1 Wilson, SE SE NE section 33-4n-9e, was drilling at 2,900 feet.

Wayne County

Benedum & Trees, Inc., No. 1 Knapp, SE NW SW section 33-2n-8e, was at a total depth of 3,106 feet and coring ahead. It had Weiler sand at 2,785 feet. Washburn Petroleum Co. No. 1, in section 32-2s-6e, found water in sand at 2,527-82 feet and 2,594-2,623 feet.

Miscellaneous Drilling

In Clinton County Bell Oil Co. was running 8-inch casing to 801 feet in No. 1 Maddox, C W half NW SW section 4-1n-3w. W. C. McBride, Inc. was shut down at No. 1 Koumerous, SW SE SE section 27-2n-3w, after getting water at 620-40 feet. Adams Oil & Gas Co. was drilling at 1,223 feet in No. 1 Yantis, C NW SE section 27-3n-1w.

In Fayette County, Universal Well Servicing Co. No. 1 County land, SE cor. NW SE section 36-7n-1w, was drilling below 1,115 feet. John Farrelly was shut down at 1,100 feet at No. 1 Lilly, SE cor. SW SE section 16-8n-3e, and Carter Oil Co. No. 1 Miller, C W half NW NW section 12-8n-3e, was at a total depth of 1,607 feet. It was shot with 20 quarts on bottom and the casing was damaged. The crew was cleaning out.

In Edwards County, Leach Brothers No. 1 A. D. Lee, SW NE SE section 11-1s-10e, was drilling at 2,170 feet.

In Jasper County, Diamond Halff Oil Co. No. 1 Isley, C NW NW section 24-4n-8e, got salt water and mud on

drill stem test at 2,626-38 feet, drilling at 3,025 feet.

In Washington County, Milliken and others No. 1 Lesseman, NW NW NW section 36-1n-2w, had Benoist sand at 1,417-50 feet and a hole full of water. Underreaming 6-inch pipe to 1,410 feet.

In Hamilton County Carpenter and others No. 1 Clarke, NW NW SW section 32-3s-5e, was drilling at 2,005 feet.

In Effingham County, Faurot and others No. 1 Lilly, SE SW SE section 16-8n-3e, was drilling at 2,504 feet.

In Jefferson County, Dee & Carter No. 1 Hamilton, NE cor. SW NW section 20-4s-3e, total depth 2,921 feet, recemented the 3-inch pipe. Shut down for orders.

In Pope County, C. C. Whitlock No. 1 Anthis, NW NW NE section 12-11s-5e, was drilling at 1,170 feet.

In Randolph County, Mabee Consolidated Co. No. 1 Wilson, C E half SE NE section 3-4s-5w, was underreaming 6-inch to 1,862 feet to drill ahead.

In Bond County, Whitehead & Maury No. 1 Polland, NW SE SW section 26-6n-2w, is running 4½-inch pipe to 2,430 feet, with the hole full of water.

In Christian County, Parshall & Graham were drilling at 1,735 feet in No. 1 Yockey, SW SW NE section 36-15n-2w.

OHIO

FINDLAY, Ohio, Oct. 4.—In northeastern Ohio the outstanding oil completion of the week seems to be the Preston Oil Co. No. 1 Lloyd Bailey, section 10, Jackson Township, Knox County. The well made 65 bbls. per day from Clinton sand at 3,123-75 feet. In section 23, Howard Township, same county, Upham Gas Co. No. 2 William King gauged 260,000 feet of gas in the Clinton at 2,761-72 feet.

In Ashland County, Robinson and others No. 6 Howard Young, section 16, Lake Township, made 24 bbls. of oil and 157,000 feet of gas in the Berea at 666-755 feet.

In Tuscarawas County, East Ohio Gas Co. No. 2 Charles A. Lebold, in the third quarter of Sandy Township, was abandoned as dry in Clinton sand at 4,719-4,809 feet, total depth 4,895 feet. In Franklin Township, same county, East Ohio Gas Co. No. 1 M. & H. Fuhrer, section 12, made 1,332,000 feet of gas, naturally, from the Clinton. It was shot and shut in after it made 4,123,000 feet of gas with a rock pressure of 1,420 pounds. The Clinton sand was encountered at 4,284-4,301 feet.

In Holmes County, Dave Shafer No. 1 Hannah Smith, section 17, Monroe Township, was abandoned as dry in the Clinton 3,505-45 feet.

In Licking County, Rutledge & Mosholder No. 6 William Teagarden, section 14, Perry Township, made 5 bbls. per day from the Berea at 764-72 feet. In Newark Township, same county, Wehrle Gas Co. No. 1 Homer Berry gauged 115,000 feet of gas from Clinton sand at 2,286-2,315 feet.

In Perry County, Sturm and others No. 4 O. T. Vansickle, section 6, Reading Township, made 304,000 feet of gas from Berea at 900-01 feet.

In Morgan County, Burt & Sons No. 11 Susan B. Minor, Lot 1097, Windsor Township, made 2 bbls. of oil initially, from the Peeker sand at 467-501 feet.

In Monroe County, Lumbatis and others No. 2 Olive Fogle, section 9, Franklin Township, gauged 213,000 feet of gas after a shot in the Berea at 1,910-20 feet.

In Athens County, Gibson and others No. 9 J. H. Cunningham, section 29, Rome Township, was drilled through the Maxton sand to a depth of 1,013 feet. The well was plugged back to the first Cow Run at 420-28 feet. It was shot and made 5 bbls. the first 24 hours thereafter. In section 17, Lodi Township, same county, A. D. Townsend No. 1 C. M. Weatherby was shot in second Berea at 1,631-41 feet, and shut in with a 95,000-foot gas production. The rock pressure was 660 pounds. Speary Oil & Gas Co. No. 2 Mary Harrison, section 12, Canaan Township, Athens County, was a dry hole in the second Berea at 1,361-76 feet.

In Guernsey County, John Bindas No. 1 Michael Polaski, section 24, Wills Township, was abandoned, with water in the Berea at 1,311 feet.

Portage Producers, Inc., No. 1 Cambria Clay Products Co., section 13, Washington Township, Lawrence County, made 600,000 feet of gas naturally in the Sale sand at 463-65 feet. The rock pressure was 100 pounds.

In Noble County, Chaseville Oil & Gas Co. No. 3 Helen B. Murphy, section 13, Buffalo Township, made 100,000 feet of gas from Berea at 1,500-30 feet.

Meigs Development Co. No. 3 Ira Wolfe, section 25, Sutton Township, Meigs County, started at 4 bbls. per day from the second Cow Run sand at 744-50 feet.

Ohio Fuel Gas Co. No. 1 Nancy Van Horn, section 3, Warren Township, Belmont County, was abandoned, with water in the Berea at 1,803-18 feet.

In Scioto County, Collinswood Gas Co. No. 1 James A. Hickman, section 30, Madison Township, was plugged and abandoned as dry in the Berea from 608-700 feet.

WESTERN KENTUCKY

OWENSBORO, Ky., Oct. 4.—Six oil wells, one of them a 90-bbl. initial producer; two good sized gas wells and nine dry hole, a total of 17 completions, summed up the past week's results in Western Kentucky.

The record of completions and new operations follows:

Hancock County

Easton district: Bollinger and others No. 3 William McIntosh, 5 bbls., Jackson sand, 540-70½ feet, shot with 120 quarts at 554-70 feet, total depth 600 feet. Chester Oil Co. No. 7 Bessie Fuqua, dry hole, no Jett sand, total depth 385 feet. Moss Oil Co. No. 3 Nora Richards, dry hole, Jackson sand, 570-607 feet. J. C. Ellis No. 15 R. A. Richards, 25 bbls., Jett sand, total depth 341 feet; No. 22 Smith heirs, 10 bbls., Jett sand, total depth 342 feet; No. 23 Smith Heirs, spudding in.

Pellville district: Frank Damron and others No. 4 Alice Bates, dry in Jett, going to Barlow; No. 2 John T. Newton, dry hole, Jackson sand 538-48 feet, total depth 588 feet; No. 3 John T. Newton, spudding in; No. 4 Ellen House, drilling at 260 feet.

Chambers district: Kentucky Natural Gas Co. No. 1 G. W. Miller, dry hole to Mississippi lime, total depth 687 feet.

Floral district: Groverly Oil & Gas Co. No. 5 Ab Baker, drilling at 350 feet.

Adair district: Taylor Brothers No. 2 John Allard, drilling at 600 feet.

Ohio County

Narrows district: Nollen Oil & Gas Co. and others No. 1 Annie Turnham, dry hole through Bethel sand, total depth 665 feet.

Reynolds district: H. Ogle No. 3 W. H. Lyons, moving in.

Ralph district: H. B. Bastress No. 17 J. L. and J. H. Ralph, dry hole.

Adaburg district: Leper Oil Co. No. 9 L. C. McKinley, rigging up. B. & B. Oil Co. No. 2 Bend Midkiff, drilling at 228 feet.

Friendship Church district: A. Teller and others No. 4 Estill Board, dry hole, Barlow sand 667-80 feet; No. 5 Estill Board, rigging up. Joseph B. Myers and others No. 3 Tom Hamilton, drilling at 553 feet. Elvis DeHart and others No. 1 A. P. Kelly, 18 bbls., Jett sand, 409-26 feet, shot 50 quarts; No. 2 A. P. Kelly, rigging up.

Horton district: Fred Hupp & Pursifull No. 1 Horton Coal Co., dry hole, total depth 800 feet.

Heflin district: W. W. Damron No. 1 W. F. Coffman, drilling at 906 feet. Marhill Oil Co. and others No. 1 Montgomery Brothers, spudding in.

Daviess County

Haynes district: A. H. Stewart and others No. 1 William Holland, rigging up.

Hewlett's Store district: S. J. Serman No. 1 Joe Johnson, drilling at 550 feet.

Dermont district: Blair and others No. 1 L. S. Sizemore, spudding in.

McLean County

Grindstone Hill district: Ohio Oil Co. No. 12 G. B. McManama, 90 bbls., Barlow sand, 1,421-47 feet, total depth 1,448 feet.

Henderson County

Niagara district: Mecca Oil Co. No. 2 W. Robards, location. Jay Petroleum Co. No. 4 Ed Farley, location.

Breckenridge County

Van Zant district: Kentucky Natural Gas Co. No. 2 W. J. Robinson, 200,000 feet of gas, Bethel sand 568-82 feet, gas at 570 feet; No. 2 Mac H. Dowell, 431,000 feet of gas, Jackson sand 493-501 feet, rock pressure 126 pounds; No. 3 Mac H. Dowell, drilling at 516 feet.

Butler County

Rochester district: A. M. Collins and others No. 4 Zella Woodall, 20 bbls., Jett sand 683-723 feet, shot 100 quarts.

EASTERN KENTUCKY

ASHLAND, Ky., Oct. 4.—Several oil well and one gas well completions are included in field reports from Eastern Kentucky this week, while a reliable source reports the completion of a 125-bbl. per day well in McLean County.

The Kentucky-West Virginia Gas Co. reports the completion of No. 554 on the Lark Slone land on Jones Fork in Knott County. Drilling ended at a total depth of 2,682 feet in white shale and the well shows a production of 269,000 feet of gas daily.

C. E. Townsend, agent, completed Nos. 8 and 9 Andrew Combs on Billies Fork in the Big Sinking district of Lee County. Well No. 8, completed at a total depth of 967 feet, shows a daily flow of 10 bbls., while No. 9, completed at 974 feet, shows 40 bbls. of oil per day.

In Lee County, H. T. Barnes completed No. 3 Alvin

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White, a 10-bbl. well at a total depth of 875 feet. Central States Oil Co. completed No. 5 Marion Shoemaker at Zoe, at a total depth of 1,205 feet. It started at 10 10 bbls. per day.

Lawrence Drilling Co. brought in a 125-bbl. producer this week in McLean County for the South Penn Oil Co. It is the second producer brought in on the South Penn acreage in McLean County in three months. The first was a 100-bbl. well.

Knott County

In Knott County, Kentucky-West Virginia Gas Co. is below 2,466 feet in No. 553 on Isom Gobson land in Knott County. The same firm is down 2,260 feet, in Big lime, in No. 5,228 on Nancy Johnson farm on Caney Fork.

The Inland Gas Corp. is drilling at 1,488 feet, in lime and slate, in No. 2 E. A. Hammonds, on Right Fork of Troublesome Creek. The same firm is down 1,535 feet, in Salt sand, in No. 3 on the R. C. Kilgore farm nearby, and has reached the 52-foot level in No. 1 Mayo Craft in the same locality.

Floyd County

The Inland Gas Corp. is drilling at 1,358 feet, in sand, in No. 1 Ollie M. Glenn Heirs, on Levisa Fork in Floyd County. Kentucky-West Virginia Gas Co. is shut down at No. 557 on Ingram Stepp land on Johns Creek. The same firm is down 250 feet, in slate, in No. 5,229 on John M. Wood land on Porter Branch.

Martin County

Kentucky-West Virginia Gas Co. is setting machine for No. 2 John Layne in Martin County, and is also setting machine for well No. 5,226 on C. W. Preece farm on Coldwater Fork. The firm is spudding at the 75-foot mark in No. 5,230 on the same land.

Lawrence County

Kentucky Oil Producers are spudding in No. 1 John Rose on Keaton in the Keaton district of Lawrence County. McKinser Brothers are fishing for tools in No. 1 on Mrs. E. McKinser land on Right Hand Fork of Little Blaine Creek.

Lee County

McCann & Wissing are down 375 feet in No. 15 Andrew Combs. South Penn Oil Co. was drilling at 500 feet in No. 96 Flahaven Land Co. on Big Sinking.

Thomas Whittmer has reached 600-foot mark in No. 4 on C. J. Tipton land on Billie's Fork.

Gulf Coast Fields

(Continued from Page 274)

foot hole in the Abbeville field, Vermilion Parish. While coring at 11,909 feet the well attempted to blow out causing the drill stem to stick and the well is reported to have flowed an estimated 15,000 bbls. of salt water per day through the drill stem. After the well was killed with heavy mud the drill stem was recovered and the bottom of the hole was cemented with 200 socks. While drilling plug the drill stem was stuck again and the operators are now running a reversing tool in attempt to clear the hole of the drill stem.

Discovery well in St. Martinsville, Louisiana

Good Producer in Lance Creek May Be of Great Importance

By TOLBERT R. INGRAM

DENVER, Colo., Oct. 4.—The Lance Creek field in eastern Wyoming, which has had a spectacular career second only in the Rocky Mountain area to the Salt Creek field, sprang into first place in the news again when A. B. Cobb and the Holly Development Co. No. 2 Novick came in as a large producer in the Minnelusa sand of Pennsylvanian age. The well is on the southwestern edge of the Sundance sand pool in the SE SE SW section 6-35n-65w, and is the first test to the Minnelusa completed on that side of the field. The discovery is one of great importance and raises the question whether the field is to be another Salt Creek.

The Cobb-Holly well was a failure in the Sundance, having water in that horizon at 3,997-4,096 feet. A discovery in a deeper horizon on the east side of the field shortly before made the operators decide to carry it down. In July it reached 5,305 feet and was unofficially reported abandoned in the Minnelusa as a failure. This, however, proved incorrect, but the well remained shut down until two weeks ago. Work was then resumed to make a test.

The Minnelusa sand was at 5,252-73 feet. The 7-inch was cemented at 5,237 feet, the hole conditioned for a test and the tubing run. The first hour it flowed approximately 80 bbls. through the 2½-inch with 2,000,000 feet of gas. First test showed 6 per cent basic sediment. The hole was then circulated with oil and further testing followed. The flow gradually increased until it reached a maximum of 110 bbls. in one hour and then settled back to a steady flow of 100 bbls. per hour which it was making when shut in for storage. The basic sediment in the meantime steadily decreased until the last test showed only 1 per cent. The oil tests 42-gravity and is the same type of crude found in the Minnelusa on the east side. The elevation of the well is 4,436 feet.

To understand the importance of the Cobb-Holly discovery, it is necessary to review certain developments. The field has about 45 Sundance sand producers. The production is under proration and runs total around 12,000 bbls. per day with a daily potential of possibly 50,000 to 75,000 bbls. The limits of the Sundance pool are about determined on all sides and approximately 2,000 acres are proven with estimated reserves of 35,000,000 bbls.

In June, 1936, Ohio Oil Co. penetrated a deeper pay in its No. 5 Converse Sheep, C SE SW section 32-36n-65w, on top of the dome. While rumors were current that this well was good for 3,000 to 4,800 bbls. per day, the company never gave out any information and it was plugged back and completed in the Sundance. Doubts about the Pennsylvanian section were removed last June when the company's No. 5 Leo OPC-16, NW NW SW section 35-36n-65w, 2 miles east of the nearest Sundance producer, was completed in the Minnelusa (Tensleep) at 5,625 feet for 1,800 bbls. per day, the oil testing 42.3-gravity.

This well was east of a fracture zone and there was a question whether production would extend all the way around the structure. The Cobb-Holly well, 4 miles to the southwest and on the west side, apparently answers that question. It found the pay approximately 135 feet higher structurally than the Ohio well and the formations correlated satisfactorily.

Drilling operations to the Sundance have given evidence of a saddle and possibly a syncline between the eastern and western parts of the field. This was indicated by a good Sundance producer in section 34, while wells between this well and the larger producers indicated they were on the edge. Continental Oil Co. No. 10 Tom Bell Cattle, C SW NW section 34, a west offset to the Sundance producer, was a failure in the Sundance and it was decided to take it down for a deep test. It was out of the red beds at 4,148 feet and had an oil sand in the Minnelusa at 5,284-5,301 feet which flowed 12 bbls. of 43.5-gravity oil through the tubing per hour on a short test. This well then was carried down and is now plugging back to the pay to complete. It was drilled into pre-Cambrian rock at 6,256 feet. Cores showed it is in a fractured zone. The elevation is 4,351 feet. It topped the Madison at 5,640 feet, showing about 955 feet of Pennsylvanian.

A number of geologists have expressed the opinion the Pennsylvanian beds at Lance Creek resemble the Mid-Continent structures more than the sharp-dip domes of the mountain area. If this theory proves correct, the lower pay may easily extend out to three or four times the area of the Sundance pool. Samples of the Minnelusa have been submitted to chemists for tests to determine reaction to acidization and the results are reported to be favorable.

Immediately to the south of the Cobb-Holly well, MacKinnie Oil & Drilling Co. No. 2 Thompson, only 540 feet away, which was a failure in the Sundance, is moving in equipment to carry this well to the new pay. Several tests in the field, mostly close to or outside the edge of the Sundance pool, are now drilling to the deeper pay. These will indicate the possibilities around the entire structure in the Pennsylvanian.

To Drill in Scotland

Anglo-American Oil Co., an English subsidiary of Standard Oil Co. (New Jersey), has abandoned its first test for oil in East Sussex near Hellingly. The test was drilled to a total depth of 3,506 feet. Future plans call for drilling another wildcat test in Scotland on a permit obtained late last year.

Sweden Reduces Alcohol Content

The required amount of motor alcohol to be purchased by all importers of gasoline into Sweden has been reduced by Royal Decree to 2.2 per cent for the period from July 1 to September 30, 1937, compared with 3.6 per cent of total imports for the previous three months' period.

Rocky Mountain Areas

(Continued from Page 286)

Daggett County

Mountain Fuel Supply Co. No. 1 Smith, C SW NE sec. 30-3n-24e. Drlg. 3,708 ft.

Grand County

Utah Southern Oil Co. No. 1 Hyde, SE NW NW sec. 33-22s-22e. S.D. 6,715 ft.; M.I. heavier rot. equip.

Columbia Crude Corp. No. 1 Rath, NW SW SE sec. 12-25s-20e. Drlg. 2,334 ft.

Cane Creek Oil Co. No. 1 Govt., NW SW sec. 31-26n-21e. Drlg. 350 ft.

NEBRASKA

Sioux County

J. M. Huber Corp. and United Producers, Inc., No. 1 Morgan, C SW SW sec. 32-35n-56e. Drlg. 3,030 ft. in Upper Sundance.

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Eastern Field Report

By STAFF CORRESPONDENT

DEEP DRILLING FOR GAS IN EAST REMAINS ATTRACTIVE

PITTSBURGH, Pa., Oct. 4.—Three new deep tests are scheduled in the lower eastern fields, two of which are distinct wildcats and the third searching an extension of known production. In southwest Pennsylvania, John T. Galey and others are moving in material for a test on the James Tennis heirs farm in South Beaver Township, Beaver County. It is located about 4,500 feet southwest of the Oriskany gas well on the Minnie Weigle heirs farm which is good for 1,500,000 feet a day in that formation. This will form a triangle southward from these operators' gas wells on the Weigle and Graham (Calvin) farms. The location was made after extensive surface and seismograph studies.

In West Virginia, the Potter Development Co. has made a location for an Oriskany test on the William T. Chancey farm in Ripley district, Jackson County. It is approximately 1½ miles southeast of Ripley and has a surface elevation of 633 feet.

In the same county but in Washington district, the Lima Gas Co. has made a location for a deep test on the Ida M. Cox and others lease about 1 mile northwest of the town of Gay. The elevation is 767 feet.

In this district, two wells are drilling. The No. 2 of the United Carbon Co. on the Elizabeth Ward Perkins farm topped the Corniferous lime at 5,303 feet and it will be drilled about 25 feet more in that formation and then 5⅞-inch casing will be run before drilling through to the Oriskany sand. This places the top of the Corniferous at 4,320 feet subsea which is deeper than expected. The No. 1 on this farm is now cleaning out at 5,020 feet after replacing the 8-inch casing with 7-inch due to a leak. The surface elevation of this test is 969.5 feet.

Six oil wells, three gas wells and one dry hole were completed in southeast Ohio in the past week, the best of the oil wells having been a 90-bbl. initial producer, Emerald Petroleum Co. No. 3 Cockran, section 12, Fallsbury Township, in Clinton County, and a 55-bbl. well in Muskingum County, Edward H. Everett Co.'s test on the Ralph Roome farm, section 5, Licking Township.

Two small oil wells and three gassers were completed in the southwest Pennsylvania counties. Four oil wells and a dry hole were completed in West Virginia during the week.

SOUTHEAST OHIO

In section 26, Wayne Township, Columbiana County, southeast Ohio, the Natural Gas Co. of West Virginia's test on the D. Desellem farm has reached 6030 feet. The top of the Newburg sand was at 5,912 feet and sulfur water rose 3,000 feet in the hole and there was also about 11,000 feet of sulfur gas a day. Drilling will be continued to approximately 6,200 feet and then a string of casing will be run to shut off the water and the hole carried on down to the Clinton. The hole is uncased below the Berea.

Deep Tests in Pennsylvania

In Hampton Township, Allegeny County, the South Penn Oil Co. and others cleaned out the hole down to the top of the tools and speared by with a center spear in the test on the C. Z. Schove farm. The center spear broke in half leaving part in the hole. The tools were run in and 17 feet of hole was made drilling by the tools lost in the gas blowout. In running in the bailer, it became lodged in the hole and fishing is still in progress. The lost tools are 50 feet off bottom which was at 6,238 feet.

In Lawrence County, the test of the Carnegie Natural Gas Co. on the W. A. Currie farm in Shenango Township does not appear favorable in the Oriskany sand. The tools are 13 feet in that formation without gas, oil or water.

In Westmoreland County, water rose 5,700 feet in the test of the Potter Development Co. and others on the Indiana Savings & Trust Co. lease on the Laurel Ridge dome in Fairfield Township, after reaching 2 feet in the Oriskany sand which was topped at 7,720 feet. It will probably be plugged.

In Washington County, the test of Norwood P. Johnston and others on the James McBurney farm in Mount Pleasant Township is still in trouble due to a lost bailer lodged 150 feet off bottom. The bottom of the hole is 6,432 feet.

West Virginia Gas Wells

In Boone County, several gas well were completed. In Washington district, Big Branch Gas Co.'s test on the Robert Ball farm gauged 650,000 feet a day at a depth of 2,547 feet.

In the same district, Owens Illinois Glass Co. completed three wells. No. 19 on the Little Coal Land Co. was completed at 2,065 feet and gauges 260,000 feet a day. The company's completion on the Hatfield farm gauged 104,000 feet of gas at 2,271 feet.

In Cabell County, W. C. Kingery and others completed a test on the Mary Cole farm in Guyandotte district a total depth of 2,739 feet, with 555,600 feet of gas at 2,660-2,682 feet.

In Calhoun County, Hope Natural Gas Co. completed No. 7786 W. L. Sellers in Sherman district as a gas well at 2,080 feet, starting at 77,000 feet. In Lee district, this company completed No. 7789 Carr Shafer at 2,260 feet, total gauged before shot 116,000 feet a day. In Washington district, Starcher & Foster drilled a dry hole on the G. B. Simmons farm to 2,112 feet.

In Gilmer County, the Carnegie Natural Gas Co.'s test on the Reed farm was an Injun sand gas well at 1,734 feet gauging 100,000 feet a day. Its test on the G. C. Fisher farm is good for 300,000 feet a day at 1,797 feet.

In Kanawha County, Marshall & Price No. 11 Goshorn heirs, in Elk district, in the Weir sand at 2,182 feet was good for 35,000 feet a day. In Union district, Godfrey L. Cabot, Inc., test on the C. W. Richardson farm, had Brown shale at 4,148 feet and is good for 165,000 a day.

In Marshall County, the Union Gasoline & Oil Corp. No. 2 D. Bruce Parriott in Liberty district, Injun sand at 2,250 feet, is showing 750,000 feet a day.

In Tyler County, C. A. Bell and others test on the J. C. Bell farm in Union district was dry and abandoned at 1,769 feet.

Oriskany Gas Field

Several locations were made in the Coopers Creek field in Kanawha County. In Elm district, the United Fuel Gas Co. made a location for No. 4771 on the H. C. Walker, agent lease one-half mile south of Susan I. Given farm. The Columbian Carbon Co. made a location for a test on the Dora Cavender and others lease in this district 2,200 feet northeast of the Rome C. Cavender gas well.

In Poca district, the Spartan Gas Co. made a location for a test on the Charles Burdette heirs and Ronnie Gibson lease 1,700 feet northeast of the Victoria Landers Burdette well. The Lima Gas Co. made a location for a test on the Hazel L. Shamblin and others farm 2,200 feet northeast of the South Penn Oil Co. No. 3 T. H. Newhouse. The Linden Drilling Co. made a location on the A. T. Mairs heirs farm at the north end of Sissonville.

In Poca district, the test of Everett Starcher and others on the Greenbury Samuels farm increased with deepening to 4,890½ feet and the final gauge was 4,125,000 feet a day. No wells were completed during the week.

In Elk district, the Columbian Carbon Co. topped the Corniferous lime at 4,783 feet in the test on the Marion and Patrick lease. The Yoake Oil & Gas Co. reached the Corniferous lime at 5,029 feet in the No. 3 on the Goshorn heirs farm, same district. In this district, Benedum & Trees topped the Oriskany sand at 4,886 feet in the test on the Cora Baxter farm.

Outside Deep Tests

In Wirt County, the test of the Carnegie Natural Gas Co. on the W. O. Caplinger farm in Tucker district is drilling at 1,950 feet. In Wood County, the Belmont Quadrangle Co. is fishing at 1,725 feet on the C. D. White farm in Steel district. In Tygart district, Wood County, W. H. Bickel is down 1,400 feet in a deep test on the Reese Blizzard farm.

In Roane County, the Ohio Valley Gas Co. is drilling at 4,425 feet in a deep test on the M. C. Larch and others farm in Harper district. In Otter district, Clay County, the Pittsburgh and West Virginia Gas Co. is drilling at 750 feet on the Jesse Chapman farm.

In Petonia district, Boone County, the Owens Illinois Glass Co. is drilling at 4,578 feet in the test on the Bull Creek Coal & Land Co. lease.

SOUTHWEST PENNSYLVANIA

Two small producers were completed in Southwest Pennsylvania during the week. In Butler County, the Bream Oil Co. completed a test on the Ed and Francis Fontain farm in Butler Township in the Third sand at 1,784 feet. It is good for three-fourths barrel a day.

In Washington County, the Union Gasoline & Oil Corp. completed the A. O. Vankirk No. 7 in Amwell Township at a total depth of 3,035 feet. The Fifth sand was topped at 3,006 feet with oil at 3,009-12 feet and 3,022-25 feet. It is good for 5 bbls. a day.

In Peters Township, Washington County, the Carnegie Natural Gas Co. completed the test on the W. J. McMurray farm at 2,654 feet. The Fifth sand was topped at 2,622 feet with gas at 2,624 feet good for 50,000 feet a day; gas at 2,634-36 feet which increased the gas to 168,000 feet a day; and gas at 2,641-42 feet which increased the gas to 199,999 feet a day.

In West Finley Township, Washington County, the Natural Gas Co. of West Virginia completed a test (No. 766) on the Rebecca J. Roupe farm at a depth of 2,791 feet. The Fifty-foot sand was at 2,773-91 feet with 150,000 feet of gas a day at 1,773 feet.

In Greene County, the Manufacturers Light & Heat Co. completed a test on the William Grimes farm in Center Township at 3,329 feet, the Bayard sand, and it is a gas well gauging 197,000 feet a day. In this district, the Carnegie Natural Gas Co. is trying to straighten the hole on top of the producing pay, the Nineveh Thirty-foot sand, to drill the well in. The depth is 3,194 feet on the J. H. Orndoff farm. This company is grading a No. 3, same farm, and drilling at 400 feet, the J. W. Milliken No. 3. The Manufacturers Light & Heat Co. is down 3,012 feet on the W. L. Fordyce farm with the Fifty-foot sand at 2,990 feet and some gas at 3,002-04 feet. Milliken and others are spudding in the No. 4 Charles Harvey. Charles Mong and others are moving in material for No. 2 J. L. Metz.

In Springhill Township, Nelson M. Richard & Co. are running casing at 2,200 feet in the test on the Rossell Sammons farm. In Aleppo Township, Cochran & Cochran have spudded in and started drilling No. 4 John Strope. In Richhill Township, Smith McCracken shut down at 1,152 feet for water on the Asa Hughes farm.

Magnetic Storm

TUCSON, Ariz.—U. S. Coast and Geodetic Survey Observatory report a magnetic storm started at 8 a.m. September 30 and ended at 8 p.m. October 1, Central standard time.

West and North Texas

By
L. E. BREDBERG

IMPORTANT FIND IN YOAKUM; BIG WELL IN FISHER COUNTY

FORT WORTH, Tex., Oct. 4.—One of the best wells yet completed in Yoakum County is the discovery well of the Denver Producing & Refining Co., in section 831, Block D, John H. Gibson Survey, in the southwestern part of the county. It may later be linked with the Wasson field in northwestern Gaines County, about 6 miles away, and to the Bohago and Bond discovery, about the same distance to the north, which is another discovery for Yoakum County. The Denver well was flowing 892 bbls. a day from lime pay topped at 4,950 feet, with total depth 5,001 feet. Elevation is 3,616 feet.

This discovery has led to the staking and drilling of a number of tests in its vicinity, a couple of which will lead to mile or more extensions if they prove productive. The Texas Co. is still trying to make a producer out of No. 1 Walker, in section 794, same block and survey, and about 4 miles to the west of the Denver discovery, but so far it is nothing but a "swabber." It has been given heavy doses of acid in an effort to make a pumping or flowing producer of it. It is to be reacidized and then shot.

Gravity of the oil in the Denver well tested 35.5 degrees, and the gas volumed was 2,000,000 feet per day. The well flowed through 2½-inch tubing on a 24-hour test made by the Railroad Commission. A total of 14,000 gallons of acid was used to disintegrate the lime, which, in the northern part of the basin, lacks porosity.

Six miles north of the Denver discovery, in the area opened recently by the Bohago Oil Co. and Bond Oil Corp.'s No. 1 J. L. West, in section 706, Block D, which made only a small well, the Standard Oil Co. of Texas No. 1 B. M. Sawyer, in section 576, same block and survey, cored oil-saturated lime at 5,202-14 feet, and then shut down to run and cement casing before drilling deeper. It is located three-quarters of a mile northwest of the Bohago discovery and is now appearing as an extension well to that area. Total depth of the Bohago well is 5,255 feet. It was also given heavy doses of acid before completing last week.

Rotan Field

While many rotaries have been stacked in the Permian Basin sector of the West Texas district, where drilling has slumped in the past few weeks, the recently opened Rotan field, located 2½ miles northeast of Rotan in northern Fisher County, is getting under way in an apparently active drilling campaign for the next few months. The Sunray Oil Co., which recently purchased the discovery lease and about 1,000 acres around it from the Southern Oil Corp., has made eight locations to be drilled one or two wells a time until these locations are drilled, and the General Crude Oil Co. of Houston has staked six locations, with independents staking still others.

The largest well ever drilled in Fisher County is the Montour Production Co. test on the Ernest Smith lands, SW quarter of section 172, Block 2, same section as the discovery well, but to the southwest of it. It flowed 1,000 bbls. of high-gravity oil, better than 41 degrees, in five hours, but was rated as even potentially greater than that by those watching and interested in it. Estimates on its potential range from 13,000 to 20,000 bbls. per day. The pay in that area is sandy dolomitic lime, which reacts to acid, although this big well was not acidized. Geologists watching the field give the porosity of the lime pay as the greatest factor in the production of the field. The pay in this test was topped at 3,550 feet and total depth was 3,558½ feet. The well drilled itself deeper to an estimated 3,560 feet.

As a result of this gusher, Montour Production Co. has staked locations for eight more wells in the field. The Lewis Production Co., which also has production in the field, is an affiliated company of the Montour.

One of the General Crude Oil Co.'s locations falls in section 171, Block 2, H.&T.C. Survey, about 2 miles southwest of the field, and within a half mile of the Rotan townsite. Another outpost location made by the company is on the Casey farm in section 173, Block 2, 1 mile east of the pool discovery well. One test is drilling about a mile north of the field, one a couple of miles to the northwest and another one-half mile south of production. Supply companies are moving in to Anson in Jones County and Rotan near the field, to handle the combined Jones and Fisher counties' business.

New Pay for Avoca Field

The recently opened Canyon lime field 2½ miles northeast of Avoca in northeastern Jones County, which is producing from the Canyon series of the Palo Pinto lime, below 3,500 feet, was definitely given another pay horizon this week, a shallower sand pay, believed to be the Saddle Creek. This new pay was topped at 1,583 feet and the well had to be shut down to set a string of pipe at this depth. It is Iron Mountain Oil Co. No. 2 Jones and Stasney, in section 196, B.B.B.&C. Survey, about one-quarter mile north of the company's No. 1 Jones and Stasney, which recently proved the largest well in the field from the deeper pay. No. 2 is estimated at 500 bbls. at its present depth of 1,587 feet, drilling 4 feet deeper after setting casing. A twin location will be staked to drill to the deeper pay.

Defining Test

Murray & Harrison No. 1 Little & Aiken, NW cor. SW section 172, same survey, was considered a failure and abandoned at 3,515 feet. Maracaibo Oil Exploration's shallow twin well to its Canyon pay well, in the NW cor. SW section 196, east offset to the discovery, failed to make a producer from the Fry sand which showed oil in the deeper well. Total depth of this shallow test is 1,455 feet.

Bells Wells Oil Co. made a location in the NE quarter of section 165, B.B.B.&C. Survey, about 1¾ miles northeast of the discovery well.

Humble Pipe Line Co. is laying a 4-inch line from the Bluff Creek field in Shackelford County, to the Avoca field, and will soon be running oil from the new wells. The Humble Oil & Refining Co. has a half interest in the Iron Mountain leases and wells and also holds a full interest in some outside acreage in the area.

Another McCamey Extension

A 1¾-mile southern extension to McCamey in Crane and Upton counties was made by Mac T. Anderson and others on Cordova Union lands in section 23, Block 35, H.&T.C. Survey. It has not been completed, but is expected to make a commercial pumper from lime pay logged at 2,155-60 feet and 2,188-2,205 feet. Total depth is 2,205 feet. The well will be acidized.

Gas in Yates

What might be the forerunner of a northern extension to the old Ogden area in northern Andrews County is the Gulf Oil Corp. No. 1-G State, located in section 8, Block 14, University lands, which blew out with an estimated 6,000,000 feet of gas from the Yates sand section, the main part of the gas showing at 2,950-55 feet. The hole is bottomed at 2,997 feet. The gas had to be killed with heavy mud to allow setting of a string of pipe, the the hole will be drilled to the Permian lime pay horizon found in that area.

Lease Deal

The Sunray Oil Co. has acquired a three-quarters working interest, with operating control, in 650 acres including six producing wells, in the Foster or Odessa field in eastern Ector County. York and Harper of Midland, discoverers of the field, made the sale.

New Tests

Culberson County is entering the wildcat ranks as a result of C. A. Jarrell and L. R. Bell, Austin, Tex., staking a location on the C. M. Caldwell ranch, in section 15, Block 100, P.S.L. Survey, in the northwestern part of the county. Dr. Emil Ott of San Angelo, geologized the area and assembled the 15,000-acre block on which the scheduled 5,000-foot Delaware sand test is to be drilled.

Bob Adams of Fort Stockton staked location for No. 1 A. A. Gray in section 593, Block 105, G.C.&S.F. Survey, 12 miles north of Fort Stockton, in northern Pecos County.

Carpenter & Grierson made a location on the lands of Mrs. Bennie Barnes, southwest quarter of section 22, Block C-25, P.S.L. Survey, in the northeastern corner of Loving County. It is to seek production from the Delaware sand.

Northern Pumper

The most northern producer in the West Texas district, P. N. Wiggins and others No. 1 Carrie Slaughter Dean, in Labour 26, League 92, Lipscomb County School Lands, and about 4 miles northwest of the Duggan field in the southeastern corner of Cochran County, has been completed as a pumper. It made only 187 bbls. of oil the first 14 hours, when it was shut down to move in a new boiler following a boiler explosion. Total depth is 5,030 feet and it was acidized with 4,500 gallons before completing.

The central part of Cochran County appears due for another failure as the Texas Co. No. 1 Slaughter, in League 130, Carson County School Lands, logged sulfur water at 4,908 feet, which increased when drilled below 4,955 feet. It is about 6 miles northwest of the above Wiggins well, and about 1 mile southeast of a former dry hole drilled by the Humble Oil & Refining Co.

WEST CENTRAL AND NORTH TEXAS

The King Oil Co. and associates are preparing to drill a 4,300-foot wildcat on the S. F. Lee farm, in Block 1744, T.E.&L. Survey, a short distance south of the Jack County line in northern Palo Pinto County. The company has a block of 2,500 acres in the area, and the location is near an old gasser that is still good for around 500,000 feet of gas per day.

Trend Test

The Owens-Snebold Oil Corp. of Fort Worth is drilling a wildcat on the H. B. Haterius lands, in section 163, B.B.B.&C. Survey, in the northwestern corner of Shackelford County, and on a northeast trend with the Avoca field in the northeastern part of Jones County. This test is now down below 1,100 feet and is seeking the Canyon pay found in the Avoca discovery. It is projected to 3,600 feet. Another deep test for that area is to be that of the Forest Development Corp. of Abilene on an old structure partly covered by the T. G. Hendrick ranch near the Shackelford-Haskell County line, but in the former county. Location will be in section 1, A.B.&M. lands. It will also seek Canyon production.

Deep Gasser

West of the Bryson field in Jack County, Barney Cockburn completed No. 1 Schanafelt, in the I. Hughson Survey, a gas well good for 4,000,000 feet per day from the Marble Falls lime. This is the deepest test, and the first test drilled to the Marble Falls formation, in the field. That lime was topped at 4,523 feet.

Panhandle District

A survey of the Panhandle district shows that part of Texas to have a daily potential of 1,032,419 bbls., which is the highest potential the district has ever rated. This potential is based on the production possibilities of 3,395 wells, which are distributed as follows:

Carson County 364, Gray County 1,675 wells, Hutchinson County 1,043 wells and Wheeler County 313 wells. But notwithstanding this record potential, the allowable of the field was cut from 76,230 bbls. to 71,540 bbls. per day, which brings the proration percentage from 1.878 to 1.187. Proratable oil also increased during September, from 940,420 bbls. to 955,019 bbls., or 14,599 bbls.

New Wildcat

Moran Brothers, Inc., of Wichita Falls have contract to drill a 5,000-foot wildcat test for F. P. Hynes and associates on the E. Lee farm about 5 miles southeast of Paducah in Cottle County in the northeast quarter of section 1, A.B.&M. Survey. Vincent Perini, Jr., of the firm of Merry Brothers & Perini of Abilene, geologized the structure and that company assembled the block for such a test.

The Central Oil Co. has derrick up in the southwest quarter of section 20, Block 16, H.&G.N. Survey, in Collingsworth County, for a test.

WEST TEXAS COMPLETIONS

Andrews County

Fuhrman Petroleum Corp. No. 7-B Boner, 4,250-4,488 feet, plugged back to 4,471 feet, shot, 491 bbls. Humble Oil & Refining Co. No. 29 Means, 4,500-26 feet, acidized, 605 bbls.

Crane County

Anderson Oil Co. No. 1 Durham, 2,475-2,550 feet, plugged back to 2,505 feet, acidized, 10 bbls. on pump. Enniscrane Oil Co. No. 4-B Hughes, 2,030-75 feet, acidized, 948 bbls. on pump. Hildebrandt and Lemons No. 1 Hughes, abandoned, 2,495 feet. Magnolia Petroleum Co. No. 10 Edwards, 3,242-3,558 feet, plugged back to 3,554 feet, 2,984 bbls. The Texas Co. No. 32 King, 2,352-2,627 feet, plugged back to 2,421 feet, acidized, 9 bbls. oil and 8 bbls. water on pump.

Ector County

Broderick & Calvert No. 1 Withcer, 4,180-4,326 feet, shot, 555 bbls. on pump. Amon G. Carter No. 6 Johnson, 4,062-4,200 feet, acidized and shot, 638 bbls. Cities Service Oil Co. No. 2 Bagley, 4,120-4,250 feet, acidized and shot, 425 bbls. on pump. Devonian Oil Co. No. 3-C Scharbauer, 4,170-4,220 feet, acidized, 568 bbls. E. E. Fogelson No. 1-A University, 3,425-3,628 feet, shot, 532 bbls. through three-fourths inch choke. Gulf Oil Corp. No. 2-A Connell, 3,381-3,700 feet, shot, 366 bbls.; No. 39 Goldsmith, 4,175-4,220 feet, acidized, 1,872 bbls.; No. 42 Goldsmith, 4,145-4,215 feet, acidized, 2,076 bbls.

Humble Oil & Refining Co. No. 4-B Scharbauer, 4,190-4,245 feet, acidized, 645 bbls. Landreth Oil Corp. No. 4-B Scharbauer, 4,136-96 feet, acidized, 1,888 bbls. Phillips and Pure Oil Co. No. 15 Cowden, 4,100-60 feet, acidized, 1,680 bbls. Shasta Oil Co. No. 1-D Scharbauer, 4,141-4,203 feet, acidized, 256 bbls. Sinclair Prairie Oil Co. No. 1 Cummins, 4,162-4,248 feet, shot, 5 bbls. oil plus 6 per cent water; No. 1 Johnson, 4,200-65 feet, shot, 661 bbls. on pump. Stanolind Oil & Gas Co. No. 3 Johnson, 4,123-4,230 feet, acidized and shot, 293 bbls. on pump; No. 4 Johnson, 4,148-4,235 feet, shot, 108 bbls. on pump. The Texas Co. No. 17 Connell, 3,510-3,680 feet, shot, 450 bbls. Wentz Oil Co. No. 1 Paul Moss, 3,997-4,141 feet, shot, 866 bbls.

Hockley County

Stanolind Oil & Gas Co. No. 1 Slaughter 4,940-75 feet, acidized, 432 bbls. through three-fourths inch choke.

Mitchell County

Mitchell Oil & Gas Co. No. 1 Z. Morrison, dry and abandoned, 3,157 feet, elevation 2,161 feet.

Pecos County

Cardinal Oil Co. No. 16-A Smith, 322-70 feet, 8 bbls. on pump. Paul Childress, Trustee, No. 21 Smith, 392-410 feet, 10 bbls. on pump. Ohio Oil Co. No. 17-D Yates, 1,130-1,378 feet, 2,078 bbls. Wrab Oil Co. No. 1 Yates, 1,608-30 feet, 75 bbls. oil and 50 bbls. water on pump.

Terry County

R. L. Foree and others No. 1 A. E. Pool, dry and abandoned, 5,507 feet, elevation 3,447 feet.

Upton County

Anderson and others No. 2 Elder, 2,376-2,410 feet, 538 bbls. on pump. Basin Oil Properties No. 2-B Baker, 2,393-2,401 feet, acidized, 1,017 bbls. on pump; No. 4-B Baker, 2,280-2,361 feet, acidized, 1,037 bbls. on pump. Cardinal Oil Co. No. 6 Starns-Foweler, 2,270-91 feet, acidized, 707 bbls. on pump. Bert Fields No. 12 Anna Gibbs, 2,285-2,317 feet, plugged back to 2,300 feet, acidized, 750 bbls. on pump. Homestead Oil & Gas Co. No. 7 Pure-Hughes, 2,655-2,731 feet, acidized, 790 bbls. on pump. Sergeant and others No. 3 Elder, 2,240-58 feet, acidized, 842 bbls. on pump. Snowden-McSweeney No. 7 Hughes, 2,300-36 feet, acidized, 82 bbls. on pump. Texas Pacific Coal & Oil Co. No. 3-B Lane, 2,187-90 feet, acidized, 273 bbls. on pump.

Ward County

Clark and others No. 2 Green, 2,216-2,347 feet, 642 bbls. Gulf Oil Corp. No. 55 Estes, 2,500-2,620 feet, shot, 530 bbls. Humble Oil & Refining Co. No. 19 Richter, 2,888-2,930 feet, shot, 919 bbls. Johnson and others No. 1 Cummins, 2,150-2,219 feet, 123 bbls. Magnolia Petroleum Co. No. 2-55 Sealy, dry and abandoned, 3,269 feet, elevation 2,706 feet. Sinclair Prairie Oil Co. No. 10 Archenhold, 2,807-3,030 feet, acidized, 120 bbls. on swab.

Winkler County

Eastland Oil Co. No. 5-A Halley, 2,726-2,910 feet, shot, 414 bbls. Emperor Oil Co. No. 3-B Woodley-Halley, 2,720-2,897 feet, 1,004 bbls. Magnolia Petroleum Co. No. 104 Walton, 2,850-2,940 feet, shot, 963 bbls. Richardson Oils, Inc., No. 7-B Humble-Walton, 3,275-3,410 feet, shot, 660 bbls. Skelly Oil Co. No. 21 Halley 2,695-2,910 feet, shot, 545 bbls. W. K. Royalty Co. No. 1-D Walton, 3,020-30 feet, 562 bbls.

Yoakum County

Denver Development & Producing Co. No. 1 Whittenburg, 4,950-5,001 feet, acidized, 892 bbls., elevation 3,616 feet.

NORTH TEXAS COMPLETIONS

Archer County

M. Staniforth No. 17 T. B. Wilson A, 1,602-23 feet. 5 bbls.

Cooke County

Benton & Holmes No. 1 Gibson & Pittman, 3,830 feet, dry. Bridwell Oil Co. No. 5 J. R. Parkey, 670-95 feet, 10 bbls.; No. 6 J. R. Parkey, 687-89 feet, 20 bbls. Burk Royalty Co. No. 5 Ed Wilson, 1,936-56 feet, 2 bbls. Fain-McGaha Oil Corp. No. 3 J. W. Mount, 1,756-1,805 feet, 80 bbls. T. P. Frost No. 5 John Rohmer, 822-65 feet, 7 bbls. Pace Petroleum Co. No. 11 R. E. Aldridge, 1,046-1,104 feet, 150 bbls. Schermerhorn Oil Co. No. 11 Mary Kessler, 1,297-1,327 feet, 90 bbls. Frank Schoonover, Jr. and others No. 3 Ed Wilson, 1,913-30 feet, 500 bbls. Seitz, Comegys & Seitz No. 1 W. A. Erwin, 1,653 feet, dry.

Wichita County

J. K. Bailey No. 13 W. D. McClure, 1,960 feet, dry. Deep Oil Development Co. No. 3 First National Co, 3,670-3,804 feet, 750 bbls.; No. 4 First National Co., 3,665-3,840

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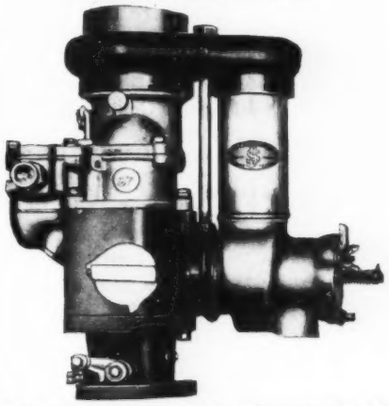

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feet, 525 bbls. Morgan & Anderson No. 2 K. T. Goetze, 907 feet, dry. Perkins & Cullum No. 5 T. L. Burnett and others A, 1,506-31 feet, 30 bbls.

Montague County

Bridwell Oil Co. No. 3 Mrs. L. J. Cunningham D, 1,338 feet, dry. Sinclair Prairie and others No. 19 D. T. Holt, 1,715-60 feet, 260 bbls.

Wilbarger County

J. B. Baker and others No. 3 W .T. Waggoner C, 1,146 feet, dry. W. W. McDonald No. 3 W. T. Waggoner A, 3,654 feet, dry. Phillips Petroleum Co. No. 1 W. T. Waggoner, 2,266-70 feet, 30 bbls.

Denton County

Sintex Oil Co. No. 1 E. W. Forrester, 1,731-63 feet, 15 bbls.

Young County

F. W. Bennett No. 1 J. H. Robertson, 3,605-30 feet, 231 bbls. Chambers & Hanks No. 1 E. A. Edwards, 950 feet, dry. Christie Brothers No. 1 Morrison, 3,760-3,868 feet, 15 bbls. Horwitz & Oldom No. 10 J. D. Lowe, 793 feet, dry. T. D. Humphrey No. 1 Shields, 3,802-3,920 feet, 600 bbls. R. E. Lowry No. 1 R. J. McCloud, 850 feet, dry. Sams & Watson No. 2 F. M. Cullers, 550-73 feet, 25 bbls.

PANHANDLE DISTRICT

Carson County

Cities Service Oil Co. No. 7 Fuqua, 2,895-3,041 feet, 11,400,000 feet of gas. Magnolia Petroleum Co. No. 30 fee, 3,015-87 feet, shot, 777 bbls. on pump. Sinclair Prairie Oil Co. No. 9 Cooper, 2,990-3,081 feet, shot, 253 bbls. on pump.

Hutchinson County

Crosbie, Inc., No. 24 Pitts, 2,741-2,858 feet, shot, 628 bbls. on pump. McIlroy and others No. 5 Haile, 3,020-76 feet, shot, 908 bbls. on pump. Shell and others No. 1 Phillips, 3,045-3,205 feet, plugged back to 3,185 feet, shot, 21,400,000 feet of gas. Sinclair Prairie Oil Co. No. 1-E Johnson, 3,045-55 feet, plugged back to 3,052 feet, 51 bbls. on pump. Texas Co. No. 7 Moore, 3,070-3,147 feet, 339 bbls. on pump. Travelers Oil Co. No. 3-B Haile, 2,969-3,039 feet, shot, 860 bbls. on pump.

Moore County

Continental Oil Co. No. 1 Phillips, 2,830-3,095 feet, 58,700,000 feet of gas. Phillips Petroleum Co. No. 1 Coffee, 3,005-3,320 feet, plugged back to 3,198 feet, 74,500,000 feet of gas; No. 1 Home Gas Co. 2,855-3,250 feet, 82,900,000 feet of gas; No. 1 Nunley, 2,659-3,050 feet, 98,300,000 feet of gas; No. 1 Test, 2,835-3,549 feet, plugged back to 3,216 feet, 136,500,000 feet of gas; No. 1 Texas, 2,980-3,190 feet, 62,100,000 feet of gas; No. 1 Venable, 2,970-3,255 feet, 60,400,000 feet of gas. Shell and others No. 1 Russell, 3,080-3,220 feet, 13,100,000 feet of gas.

Gray County

Cities Service Oil Co. No. 6-C Archer, 3,177-3,275 feet, shot, 539 bbls. on pump. Magnolia Petroleum Co. No. 3 Catling, 3,135-3,215 feet, shot, 712 bbls. on pump. Stanolind Oil & Gas Co. No. 12-B Cobb, 3,260-3,335 feet, shot, 513 bbls. on pump.

CENTRAL TEXAS COMPLETIONS

Callahan County

Pueblo Petroleum Co. No. 1 Snyder, 1,138 feet, dry and abandoned. J. T. Tuohy No. 1 George, sec. 71, B.O.A., 949 feet, dry and abandoned.

Eastland County

Beard & Taylor No. 1 Fox, 1,237 feet, dry and abandoned.

Jack County

Cockburn Oil Co. No. 3 Box, oil sands 3,109-40 feet, 3,150-58 feet and 3,162-70 feet, 381 bbls. Moncrief & Showers No. 3 Box, oil sands 3,198-3,208 feet and 3,231-52 feet, 267 bbls.

Jones County

Brown Eagle Oil Co. and others No. 3 Guitar, sandy lime 1,980-2,002 feet, acidized, 497 bbls. Charter Oil & Gas Co. No. 1 City of Stamford, 1,926 feet, dry and abandoned. Condor Petroleum Co. No. 13 Sayles, oil sand 1,963-75 feet, 428 bbls. Fain & McGaha Oil Corp. No. 1 Minter, 2,319 feet, dry and abandoned. Guitar Trust Estate No. 9 fee, sandy lime 1,969-2,002 feet, acidized, 339 bbls. Iron Mountain & Humble No. 1 Jones & Stasney, lime 3,224-41 feet, 280 bbls. per hour, natural flow. Martin & Son & Hodges No. 1 Gilbreath, 2,270 feet, dry and abandoned. S. B. Owens and others No. 1 Gilbreath, sandy lime 1,977-2,003 feet, acidized, 565 bbls. W. H. Peckham No. 1 Cherry & Davis, 2,085 feet, dry and abandoned. Ungren & Frazier No. 1 Melton, 2,525 feet, dry and abandoned.

Shackelford County

Hickok & Reynolds No. 23 Mathews, oil sand 730-38 feet, 742 feet, 28 bbls.; No. 7 Nail, oil sand 1,514-30 feet, 200 bbls. B. C. Manton and others No. 3 Newell, 1,492 feet, dry and abandoned. M. P. Moore and others No. 1 Gray, 1,816 feet, temporarily abandoned. Price, Ledbetter & Wiley, No. 1 Swenson, 1,563-70 feet, 4 bbls.

East Texas Fields

(Continued from Page 278)

3,717-18 feet, 10 bbls. in 15 minutes. Stidham and Thrasher No. 3 Russell, 3,517-22 feet, 20 bbls. in four hours on pump. Sun Oil Co. No. 19 Rollins, 3,617-87 feet, 60 bbls. per hour. Tide Water Associated No. 34 Bivins, 3,593-3,601 feet, 4 bbls. in five minutes.

Rusk County

Abercrombie and Harrison No. 5-B Brightwell, 3,575-3,610 feet, 100 bbls. per hour. Luling Oil & Gas Co. No. 8-B Brightwell, 3,622-43 feet, 70 bbls. per hour through three-quarters inch choke. Magnolia Petroleum Co. No. 15 Still, 3,655-80 feet, 20 bbls. in 30 minutes. Stanolind Oil & Gas Co. No. 8 Laird, 3,632-3,714 feet, 67 bbls. per hour. S. K. Vierson No. 4 Givens, 3,621-31 feet, 40 bbls. per hour. Dearing & Son No. 8 McDavid, 3,661-3,714 feet, 20 bbls. in four hours on pump. Despat and Adams No. 3 Deason, 3,619-84 feet, 30 bbls. in 30 minutes. G. B. R. Oil Co. No. 18 Harmon, 3,733-48 feet, 12 bbls. in 10 minutes. Haynes Oil Co. No. 11 Brown, 3,733-39 feet, 20 bbls. in 30 minutes. Humble Oil & Refining Co. No. 56 Blackwell, 3,645-47 feet, 20 bbls. in 20 minutes; No. 57 Blackwell, 3,622-23 feet, 20 bbls. in 20 minutes; No. 20-A Silvey, 3,726-28 feet, 76 bbls. per hour; No. 58-A Silvey, 3,698-3,742 feet, 65 bbls. per hour. Hunt Oil Co. No. 16-B Ashby, 3,565-3,642 feet, 20 bbls. in two hours on pump; No. 35-C Fair, 3,618-31 feet, 20 bbls. in 15 minutes. McMillan, Trustee No. 4 Thrash, 3,742-74 feet, 40 bbls. in 30 minutes. Martex Oils No. 47 Mayfield, 3,715-16 feet, 32 bbls. per hour through 1-inch choke. Octo Oil No. 4-B-A Cox, 3,620-45 feet, 80 bbls. in two hours. Ohio Oil Co. No. 16 Mason, 3,608-44 feet, 10 bbls. in 15 minutes. Spandsco Oil & Refining Co. No. 2 Alford, 3,555-3,605 feet, 20 bbls. in two hours on pump. Standard Oil Co. of Kansas No. 4 Kangerga, 3,645-71 feet, 65 bbls. in 30 minutes.

Smith County

Gulf Oil Corp. No. 14 Wiley, 3,713-21 feet, 20 bbls. per hour through three-quarters inch choke. McMurray No. 32 Turner, 3,821-22 feet, 40 bbls. per hour. Magnolia Petroleum Co. No. 19 Losier, 3,700-04 feet, 22 bbls. in 15 minutes. Sun Oil Co. No. 9 Seale, 3,716-17 feet, 20 bbls. in 75 minutes. Texas Co. No. 16 Wilson, 3,654-56 feet, 20 bbls. per hour. Texas Gulf Petroleum Co. No. 21 Hodnett-Melton, 3,680-81 feet, 20 bbls. in 20 minutes.

Upshur County

General American Oil Co. No. 20-A Sanders, junked and abandoned 2,640 feet. P. H. Pewitt No. 7 Phillips, 3,674-78 feet, 20 bbls. per hour; No. 1 Porter, 3,726-29 feet, 25 bbls. per hour; No. 2 Porter, 3,709-10 feet, 20 bbls. per hour; No. 5 Williford, 3,694-95 feet, 22 bbls. in 40 minutes; No. 16 Williford, 3,669-70 feet, 20 bbls. in 45 minutes; No. 2-B Williford, 3,710-91 feet, 25 bbls. per hour. Stanolind Oil & Gas Co. and others No. 16-A Flewellen, 3,702-08 feet, 15 bbls. per hour. Texas-Canadian Oil Co. No. 15-B Victory, 3,680-82 feet, 70 bbls. per hour; No. 16-B Victory, 3,672-75 feet, 67 bbls. per hour.

GULF COAST WATER SHIPMENTS FOR JULY, 1937

Sabine District

Company, district—	Crude Coastwise	Crude Export	Refined Coastwise	Refined Export	Total
Atlantic Ref. Co.:					
Atreco	1,567,671	324,246	.....	.....	1,891,917
Continental Oil Co.:					
West Lake	309,458	.....	.....	.....	309,458
Fohs Oil Co.:					
Burtons	235,826	.....	.....	.....	235,826
Gulf Oil Corp.:					
Port Arthur	493,930	.....	3,179,203	64,078	3,737,211
Magnolia Pet. Co.:					
Beaumont	845,656	168,180	2,586,112	.....	3,609,948
Lockport	71,255	.....	.....	.....	71,255
Pure Oil Co.:					
Smiths Bluff	174,360	.....	954,406	.....	1,128,766
Shell Pet. Corp.:					
Haymark	153,753	.....	.....	.....	153,753
Lockport	141,162	.....	.....	.....	141,162
Stanolind Crude Pur. Co.:					
Beaumont	217,765	253,627	.....	.....	471,392
Sun Oil Co.:					
Beaumont	2,090,679	.....	.....	.....	2,090,679
Texas Co.:					
Port Arthur	1,282,373	703,260	3,004,482	888,479	5,878,594
Union Sulphur Co.:					
Lockport	318,438	.....	.....	.....	318,438
Total	7,902,326	1,449,313	9,724,203	952,557	20,038,399

Mississippi District

Lincoln Pet. Co.:					
Anchorage	100,953	.....	.....	.....	100,953
New Orleans	.....	73,519	.....	.....	73,519
Shell Pet. Corp.:					
Norco	.....	.....	319,573	95,915	415,488
Standard Oil Co. of La.:					
Baton Rouge	611,695	.....	662,860	498,535	1,773,090
Anchorage	139,808	.....	.....	.....	139,808
Texas Co.:					
Amesville	154,651	.....	.....	.....	154,651
Tide Water Assoc. Oil Co.:					
Westwego	75,420	.....	.....	.....	75,420
Total	1,082,527	73,519	982,433	594,450	2,732,929

Corpus Christi District

Atlantic Pipe Line Co.:					
Harbor Island	516,601	241,684	.....	.....	758,285
General Amer. Terminal:					
Corpus Christi	25,009	289,723	474,941	404,199	1,193,872
Humble Pipe Line Co.:					
Harbor Island	2,940,217	144,618	.....	.....	3,084,835
Ingleside	140,759	.....	.....	.....	140,759
Magnolia Pipe Line Co.:					
Corpus Christi	326,817	.....	.....	.....	326,817
Republic Pipe Line Co.:					
Corpus Christi	.....	29,295	.....	.....	29,295
Total	3,949,403	705,320	474,941	404,199	5,533,863

Rio Grande Valley District

Valley Pipe Line Co.	.....	.....	100,987	.....	100,987

Houston-Texas City District

American Liberty Oil Co.:					
Norsworthy	374,482	81,684	.....	.....	456,166
Atlantic Pipe Line Co.:					
Texas City	278,000	.....	.....	.....	278,000
Eastern States Pet. Corp.:					
Houston	.....	.....	265,236	.....	265,236
Humble Oil & Ref. Co.:					
Baytown	190,394	74,954	3,052,668	788,256	4,106,272
Texas City	812,173	.....	.....	.....	812,173
Independent Terminal Co.:					
Texas City	.....	.....	150,700	90,000	240,700
Republic Oil Ref. Co.:					
Texas City	.....	.....	100,500	63,768	164,268
Shell Pet. Corp.:					
Houston	.....	182,376	885,283	95,460	1,163,119
Sinclair Ref. Co.:					
Houston	1,081,739	.....	.....	.....	1,081,739
Texas Co.:					
Houston	840,807	139,761	.....	.....	980,568
Miscellaneous	1,646,615	66,073	3,037,623	678,832	4,429,143
Total	5,224,210	544,848	7,492,010	1,716,316	13,977,384

Total by Districts

Sabine	7,902,326	1,449,313	9,724,203	952,557	20,038,399
Mississippi	1,082,527	73,519	982,433	594,450	2,732,929
Corpus Christi	3,949,403	705,320	474,941	404,199	5,533,863
Houston-Texas City	5,224,210	544,848	7,492,010	1,716,316	13,977,384
Rio Grande Valley	.....	.....	100,987	.....	100,987
Total	17,158,466	2,772,000	18,774,574	3,667,522	42,383,562

North Louisiana, Arkansas

By MITCHELL TUCKER

SCHULER'S DEEP PAY POURS FORTH STEADY PRODUCTION

SHREVEPORT, La., Oct. 4—E. M. Jones No. 1 Marine Oil Co., NW cor. SW SE section 17-18-17, Schuler field, Union County, Arkansas, is still producing approximately 2,600 bbls. of net oil daily through 1½-inch tubing choke, in addition to approximately 600 bbls. of salt water from the recently opened deep pay, bottomed at 7,571 feet. This operator made three locations the past week, No. 2 Marine Oil Co., SW cor. NW SE section 17-18-17; No. 3, NE cor. NW SE section 17-18-17 and No. 4, SE cor. SW SE section 17-18-17. Schuler produced approximately 201,950 bbls. in September.

RODESSA—LOUISIANA

R. W. Norton No. 8 Starke, NW cor. section 17-23-16, flowed 16 bbls. hourly through quarter-inch tubing choke, total depth 5,991 feet.

R. W. Norton No. 9 Starke, NW cor. section 17-23-16, flowed 20 bbls. hourly through quarter-inch tubing choke, total depth 6,000 feet.

Estimated Daily Production

Estimated daily gross production all companies week ending October 1, 1937:

NORTH LOUISIANA

	Barrels
Bellevue	725
Caddo light	3,890
Caddo heavy	2,610
Converse	795
Cotton Valley heavy	390
Cotton Valley light	*3,550
De Soto and Red River	1,490
Elm Grove	390
Haynesville	3,005
Holly	105
Homer	2,180
Lisbon	15,835
Pleasant Hill	120
Rodessa	49,800
Sarepta-Carterville	310
Sligo	250
Sugar Creek	410
Urania	2,725
Zwolle	780
Total	89,660

SOUTH ARKANSAS

Champagnolle	1,325
El Dorado	1,945
Lisbon	280
Miller County	435
Nevada	740
Rodessa	7,520
Schuler	5,015
Smackover light	2,090
Smackover heavy	17,000
Stephens	575
Troy	575
Urbana	1,200
Total	38,700

Texas side of Rodessa field 33,545 bbls. daily.

*3,095 bbls. is distillate.

RODESSA—TEXAS

Cass County

Union Producing Co., formerly reported United Production Corp., No. 2 fee, B. Holmes Survey, flowed 230 bbls. on initial test through three-eighths inch tubing choke, total depth 6,064 feet, the only completion on the Texas side of the field.

RODESSA—ARKANSAS

There were no completions on the Arkansas side of the Rodessa field.

LOUISIANA

Claiborne Parish—Lisbon

After the completion of five producers at Lisbon last week, bringing the total oil wells in this field to 122, a production average of 15,836 bbls. was established for the past seven-day period.

The October daily field allowable for Lisbon has been placed at 15,000 bbls. by the Louisiana State Conservation Commission, an increase of 2,250 bbls. Gulf Refining Co. announced that beginning October 1 it would continue to take 5,000 bbls. per day from this field for a period reasonably necessary for completion of an additional line now being constructed into the field. Earlier in the month the Gulf, which has been taking entire output of this field since last April, announced that it would discontinue the purchase of crude after midnight September 30th. The 5,000 bbls. will be taken ratably from the various producing wells and no new connections will be made. The Caddo Pipe Line Co., a subsidiary of Grogan Oil Co., is now laying a 6-inch line into the field and expect to have it in operation by October 15th.

The Lisbon Oil Co. No. 1 Burgess, section 3-20-5, refuses to flow steadily. The well flowed for a short time after being swabbed, estimated 10 bbls. per hour, and then went dead. It will probably be pumped. The accumulated production amounts to approximately 1,400 bbls.

Gulf Refining Co. No. 2 S. E. Tatum, SW cor. section 25-21-5, flowed 52 bbls. hourly through three-fourths tubing choke, total depth 5,309 feet.

Harry Hanbury No. 2-C R. Vaughn, SE cor. section 25-21-5, flowed 52 bbls. hourly through three-fourths inch tubing choke, total depth 5,264 feet.

Hollifield & McFarland No. 1 H. W. Patton Estate, NE cor. section 2-20-5, flowed 85 bbls. hourly through 1-inch tubing choke, total depth 5,246 feet; 5,000 gallons of acid was used.

A. O. Olson No. 2 J. T. Bean, NW cor. section 32-21-4, flowed 50 bbls. hourly through 34/64-inch tubing choke, total depth 5,141 feet; 3,000 gallons of acid was used.

A. O. Olson No. 3-A T. F. Patton Estate, SE cor. section 30-21-4, flowed 85 bbls. hourly through 1-inch tubing choke, total depth 5,185 feet; 3,000 gallons of acid was used.

Bossier Parish

In the shallow Bellevue field, C. H. French completed Larkin No. 1, NW cor. NW SW section 14-19-11, pumping 15 bbls. daily on initial test, total depth 386 feet.

Claiborne Parish—Sugar Creek

Union Producing Co. No. 1 Stevenson, SE cor. SW SE section 6-19-5, was completed with an estimated volume of 50,000,000 to 75,000,000 feet of gas, total depth 5,670 feet. This well was previously completed in 1930 as a 33,000,000-foot dry gasser on initial test, total depth 4,323 feet.

Drilling in water located field, Coastal Louisiana

Caddo Parish

Prairie River Syndicate No. 1 Hutchison, deep Caspiana well, SW NW section 15-15-12, was coring below 9,000 feet.

Morehouse Parish

Southern Carbon Co. No. 18 Tensas, NW cor. section 10-21-4, tested 5,000,000 feet of gas on completion test, total depth 2,161 feet.

Ouachita Parish

J. & H. Oil Co. No. 8-A Frost Lumber Co., SW cor. section 36-19-3, tested 1,000,000 feet of gas on completion test, total depth 2,187 feet.

Red River Parish

Gulf Refining Co. No. 28 Kennedy, NW cor. section 25-13-11, pumped 12 bbls. daily on initial test, total depth 2,552 feet.

Union Parish

Interstate Natural Gas Co. No. 73 fee, SE cor. section 1-20-3, gauged 4,000,000 feet of gas on initial test, total depth 2,180 feet.

Interstate Natural Gas Co. No. 75 fee, SE cor. section 25-21-3, gauged 25,000,000 feet of gas on initial test, total depth 2,154 feet.

ARKANSAS

Union County

W. D. Wingfield and others No. 1 Southern Kraft Corp., center section 18-16-14, was tested dry and abandoned, total depth 5,329 feet.

MISSISSIPPI

Bolivar County

Phillips Petroleum Co. No. 1 Porthshire, NW cor. section 2-24n-7w, has been shut down for several days but has now resumed drilling below 5,700 feet in the Paleozoic formation.

Jones County

The Snowblack Petroleum Co. No. 1 Cranford, section 29-7-12w, is shut down at 4,275 feet in fossiliferous sand and sandy shale. A drill stem test made from 4,255 to 4,275 feet showed salt water and some gas.

Wilkinson County

Charles Green No. 1 E. Taylor, section 4-3n-1e, ran Schlumberger survey to 4,035 feet. Had salt water sand from 2,467 to 2,486 feet. Preparing to set 6⅝-inch casing at 2,500 feet after which they will perforate and test.

FLORIDA

Nassau County

St. Marys River Oil Corp. No. 1 Hilliard Turpentine Co., NW cor. NW SE section 19-4n-24e, was drilling at 3,405 feet in dark gray lime last week.

Second Well Is Small

BRADFORD, Pa., Oct. 4.—Minard Run Oil Co., drilling a test 1,100 feet distant from the Niagara Oil Co.'s recent gusher on Music Mountain, 9 miles south of this city, is good for 4 bbls. per day from the sand from which the Niagara's well produced so largely in its early stages, and will not be drilled deeper. It is good for 50,000 feet of gas per day from an upper sand.

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, Oct. 2. — Turner Valley crude producers are taking further steps to organize for the purpose of widening the markets for their product. A. G. Graves of McDougall-Segur Oil Co. and William Kemp of Mercury Oils, Ltd., have been added to the committee on organization, and steps are being taken to form a permanent organization to be known as the Turner Valley Petroleum Producers Association. A levy of one-half cent a barrel on members' production will be made to finance the activities.

The brief submitted asks from the Dominion government through its tariff board or other agency a complete investigation into the petroleum industry in Canada. As a temporary measure, prohibition of the importation of crude into Alberta, Saskatchewan and Manitoba is requested, with the understanding that small refiners will be supplied at the field price. The brief estimates that by December 31 Turner Valley crude production will be sufficient to supply the three prairie provinces, and that by 1938 oil should be moving from the west to Ontario.

Turner Valley crude is now being shipped to Regina at the rate of 250 tankcars a week, and 100 tankcars weekly to Moose Jaw.

Alberta Government Attitude

The position of the Alberta government toward proration was stated by N. E. Tanner, minister of lands and mines, as follows:

"This action (proration) was taken not by the department of lands and mines, but by the two major companies—Imperial and British American—operating in the field, and applies only to those producers who are under contract to deliver their oil to these two companies. Independent companies are not directly affected in any way by the proration.

"Some time ago we were informed Imperial Oil Co. and British American Oil Co. had advised those producers who were under contract to deliver oil to them that on September 12 the production of the wells would be prorated at 65 per cent, claiming that the present production was greater than the demand, and that their storage tanks at all points were full. This meant that these two major companies were prepared to take only 65 per cent of the production of the wells under contract to them.

"We are at present gathering all information possible as to the consumption of oil in Canada, together with freight rates, imports and cost of production, and especially in the three prairie provinces, which we feel could be supplied by our Alberta fields immediately.

"Representations have been made to the federal government and also to the Canadian Pacific Railway and the Canadian National Railway seeking protection against imports of oil from the south and for lower freight rates.

"We feel everything should be done by all concerned to extend our markets and that the Canadian oil industry should be protected, encouraged and developed rather than curtailed.

"The government is determined to do everything within its power to see that action is taken to this end.

"In the meantime these two major companies, as well as a newly formed organization of the producers, known as the Petroleum Producers Association, have asked the government to supervise a test of all wells that are being prorated in order to satisfy everyone that the proration is equitable, which, under the circumstances, we are prepared to do, but only after the producers have been given sufficient time to get their wells in readiness for the test."

On the west flank of South Turner Valley, Brown Oil Corp. No. 1, LSD 14, section 16-18-2w5, finished 470 feet in the Madison limestone at 6,814 feet. For the first few days it flowed by heads; the gas production was quite small and was supplemented by gas piped from West Side Royalties No. 1. Later it flowed steadily for 24 hours, making between 375 and 400 bbls. a day. It will likely be given acid treatment. Location is 660 feet southwest of West Side Royalties No. 1, previously the southernmost producer.

In section 21-18-2w5, Davies-Royalite No. 2, LSD 13, bottoming in lime at 6,965 feet, is flowing steadily 1,400 bbls. a day on the 65 per cent proration basis.

Brown Oil Corp. No. 2, LSD 8, section 20-18-2w5, discontinued drilling at 7,002 feet, some 475 feet in the limestone, after getting strong indications of oil and gas in the porous horizon. It blew freely when back pressure was applied, and looks like probably 1,000 bbls. or more natural production. It is about a quarter mile south of Monarch Royalties No. 1 producer.

In West Central Turner Valley, Mercury Oils No. 8, LSD 3, section 4-19-2w5, finished drilling at 5,986 feet, nearly 500 feet in the lime, and is testing production. Indications are for a fair producer with considerable gas.

At least seven other tests on the Turner Valley west flank are definitely in the limestone horizon, and should get production by about the middle of October.

In section 28-18-2w5, Four Star Petroleum No. 1, LSD 13, offsetting Turner Valley Royalties No. 1 producer, got the Madison lime at 6,640 feet and cemented casing at 6,647 feet.

In section 29-18-2w5, Commoil No. 1, LSD 15, entered the Madison limestone between 6,984 and 7,000 feet and cemented casing at 7,020 feet. This is the greatest depth at which the lime has been contacted in Turner Valley. It is a half mile west of Turner Valley Royalties No. 1, being farther west of the crude oil line than any other west flank test now drilling. Commoil, Ltd., is a subsidiary of Commonwealth Petroleums, Ltd., of Calgary, which owns the acreage.

Granville Oils No. 1, LSD 16, section 29-18-2w5, which got the lime at 6,857 feet, is below 7,100 feet and getting close to production. Share Royalties No. 1, N half LSD 8, same section, is below 7,119 feet, more than 190 feet in the lime, and expected to get production around 7,380 feet. National Petroleum Corp. No. 1, S half same LSD, entered the lime around 6,762 feet and had shows of crude at 6,786 feet. It will cement casing.

In section 28-18-2w5, Model-Spooner-Reward No. 1, LSD 4, offsetting Davies-Royalite No. 2 producer to the north, is below 6,716 feet, after getting the lime at 6,461 feet. It should be finished within a couple of weeks.

In section 32-18-2w5, Royalite Oil Co. No. 28, LSD 16, is rigging, and will spud early in October.

New Locations Made

Two new tests are planned for the south end. Mid-Royal Oils No. 2 is erecting derrick in LSD 3, section 9-18-2w5. This is 2 miles south of Brown Oil Corp. No. 1 producer, and almost a mile south of National Petroleum Corp. No. 2, the most southerly test to start drilling. Royal Canadian Oils, Ltd., is reported planning to drill its No. 2 a mile farther south, in section 4-18-2w5. Earlier in the year numerous locations were spotted south of the proven field between sections 20 and 5, but in the southerly part of this area the only test to drill was National Petroleum Corp. No. 2, LSD 14, section 9-18-2w5, which is standing cemented at 3,005 feet and will resume with rotary outfit as soon as National No. 1 is completed.

Okalta Structure

On the Okalta fold, west of Turner Valley, Okalta Oil Co. No. 6, LSD 3, section 30-18-2w5, is around 1,648 feet and having considerable trouble with caving.

South End Petroleums No. 1, LSD 6, section 36-18-3w5, bottoming in the Fernie shale at 5,500 feet, is cementing caving, and will probably shut down for the winter.

North Turner Valley

In North Turner Valley, Phillips Royalties No. 1, LSD 16, section 16-20-3w5, is at 4,120 feet and pulling casing. Royalite-Turner Basin No. 2, LSD 7, section 27-20-3w5, is resuming from 4,040 feet. Home Oil Co. No. 1 Milliarville, LSD 8, section 33-20-3w5, is below 6,130 feet after contacting the Home sand at 6,000 feet. The test first got the Home sand at 4,740 feet and passed back later into the lower Blairmore. Similar conditions were met in Model Oils No. 1 crude oil producer, in section 22-20-3w5. Home No. 1 is expected to get the Madison lime around 6,500 feet.

East Side Drilling

On the New Valley structure northeast of Turner Valley, McLeod Oil Co. No. 1, LSD 4, section 6-21-2w5, is fishing at 8,462 feet.

On the Calling Valley structure, Sentinel Oil Co. No. 1, LSD 1, section 8-20-2w5, is installing control head before deepening from 5,850 feet.

Ranchmen's Gas & Oil Co. No. 1, LSD 16, section 13-20-29w4, on the Aldersyde structure, bottoming at around 7,225 feet, is shut down. The test has been drilling intermittently since 1926, and has encountered numerous oil and gas shows in a tight formation. Owing to the structural dip east from Turner Valley, the formations were much deeper, and the test is still a considerable distance above the Madison limestone. Steps are being taken to reorganize the company.

Tests in the Foothills

In the Forest Reserve area west of Olds, Hunter Valley Oil Co. No. 1 McLaren, LSD 12, section 13-31-10w5, is below 8,252 feet.

On the Moose dome, Moose Oils No. 2, LSD 8, section 29-22-6w5, is being given a pumping test of light crude encountered at 1,552 feet. Production has been unofficially estimated between 60 and 100 bbls. a day.

On the Birch Ridge structure, Elbow Oils No. 1, LSD 11, section 35-22-5w5, is underreaming and carrying casing in the Fernie shale formation below 5,220 feet and expected to get the Madison limestone around 5,600 feet. A column of water is being used to hold back the gas flow, which has caused considerable caving.

Taber Field

In the Taber field, southern Alberta, Plains Petroleum Corp. No. 1, LSD 14, section 29-9-17w4, is drilling out cement preparatory to testing production from the Ellis sand at 3,302 feet. Plains Petroleum Corp. No. 3, section 26-9-17w4, is cementing casing before deepening to the Clancey sand, where first production is anticipated. Amerada Oils No. 1, LSD 13,

(Continued on Page 316)

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WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Shell Oil, No. 2-2 Capitan, Santa Barbara Co.	32- 5-30	2,993	rig. to pump
Hancock-Bush, No. 2-H Santa Maria, Santa Barbara	30-10-33	4,397	br. sh. drlg.
Pet. Prop., Inc., No. 1-R Santa Maria, Santa Barbara	19-10-33	1,671	sd. sh. drlg.
Sed Oil, No. 1 Mills, Santa Maria, Santa Barbara	27-10-34	4,422	sd. sh. drlg.
Moore, E. H., No. 2 Sugar, Santa Maria, Santa Barbara	19-10-34	3,976	gr. sh. drlg.
Ohio Oil, No. 2-M Santa Maria, Santa Barbara Co.	21-10-34	2,177	sd. sh. drlg.
Union Oil, No. 4 Vincent, Santa Maria, Santa Barbara	30-10-33	3,005	O.S. drlg.
Union Oil, No. 2 LeRoy, Santa Maria, Santa Barbara	24-10-35	5,110	sd. sh. drlg.
O'Donnell, J. E., No. 1 Santa Maria, Santa Barbara	21-10-34	1,731	sd. sh. drlg.
Pac. Western Oil, No. 2 Santa Maria, Santa Barbara	21-10-34	4,132	cmtd. 3,919
Rice Ranch Oil, No. 4 Orcutt, Santa Barbara Co.	23- 9-34	4,330	cleaning out
101 Oil, No. 1 Pt. Concepcion, Santa Barbara Co.	35- 5-33	3,206	cmtd. 3,185
Tide Water A. O., No. 1-L Santa Rita, Santa Barbara	3- 6-33	3,765	hd. sd. drlg.
Hancock Oil, No. 2 Los Alamos, Santa Barbara Co.	6- 7-32	6,232	hd. sh. drlg.
Field, O. C., No. 1-S.R., Lompoc, Santa Barbara Co.	11- 7-33	3,358	rig. to pump
United Western Oil, No. 1 Los Olivos, Santa Barbara	15- 7-30	2,008	sd. sh. drlg.
Del Mar Oil, No. 1 Summerland, Santa Barbara Co.	16- 4-36	4,163	sd. sh. drlg.
Pet. Securities, No. 6 Ranch, Shiells, Ventura Co.	3- 3-19	3,593	O.S. drlg.
Texas Co., No. 133 Shiells, Ventura Co.	4- 3-19	4,128	cleaning out
Texas Co., No. 134 Shiells, Ventura Co.	4- 3-19	2,060	sd. sh. drlg.
Union Oil, No. 16 Bardsdale, Ventura Co.	12- 3-20	6,455	O.S. drlg.
Richfield Oil, No. 1 McFarland, Camarillo, Ventura	13- 2-21	4,453	hd. sh. drlg.
Condor Oil, No. 1 Sespe, Ventura Co.	6- 4-19	2,130	sd. sh. drlg.
Ivers, H. A., No. 14 Star, Sespe, Ventura Co.	1- 4-20	1,502	cleaning out
Williamson Oil, No. 1 Sespe, Ventura Co.	1- 4-20	394	hd. sd. drlg.
Section 20 Oil, No. 1 Sespe, Ventura Co.	20- 5-19	291	sd. sh. drlg.
Speik Oil, No. 2 Sespe, Ventura Co.	33- 5-19	3,125	sd. sh. drlg.
Colima Oil, No. 2 Sespe, Ventura Co.	25- 5-19	3,430	sd. sh. drlg.
Topa Topa Oil, No. 3 Sespe, Ventura Co.	33- 5-19	4,361	sd. sh. drlg.
Commander Oil, No. 7-F Piru, Ventura Co.	13- 4-19	286	sd. sh. drlg.
Skyline Oil, No. 1-H Hopper Canyon, Ventura Co.	13- 4-18	1,015	sd. sh. drlg.
Val. Giovani, No. 1 Ojai, Ventura Co.	4- 4-21	1,600	hd. sh. drlg.
Continental Oil, No. 8 Grubb, San Miguelito, Ventura	24- 3-24	161	sd. sh. drlg.
C. C. M. Oil, No. 2 Padre Canyon, Ventura Co.	23- 3-24	7,480	fish. D.P.
Continental Oil, No. 4 Padre Canyon, Ventura Co.	15- 3-24	3,261	sd. sh. drlg.
C. C. M. Oil, No. 16 Rincon, Ventura Co.	8- 3-24	4,490	sd. sh. drlg.
C. C. M. Oil, No. 17 Rincon, Ventura Co.	17- 3-24	2,696	sd. sh. drlg.
Oxnard Oil, No. 1 Oxnard, Ventura Co.	10- 1-22	6,150	O.S. drlg.
Rowe, W. G., No. 1 Johnson, Oxnard, Ventura Co.	15- 1-22	1,992	sd. sh. drlg.
Vaca Oil, No. 2 Oxnard, Ventura Co.	6- 1-21	4,181	hd. sh. drlg.
Tide Water A. O., No. 28 V.L.W., Ventura, Ventura	26- 3-23	7,028	reaming
Tide Water A. O., No. 30 Lloyd, Ventura, Ventura	27- 3-23	5,093	sd. sh. drlg.
Tide Water A. O., No. 61 Lloyd, Ventura, Ventura	27- 3-23	7,070	sd. sh. drlg.
Tide Water A. O., No. 62 Lloyd, Ventura, Ventura	27- 3-23	6,080	sd. sh. drlg.
Tide Water A. O., No. 63 Lloyd, Ventura, Ventura	27- 3-23	1,071	sd. sh. drlg.
Tide Water A. O., No. 137 Lloyd, Ventura, Ventura	27- 3-23	10,045	O.S. drlg.
Tide Water A. O., No. 18 Hartman, Ventura, Ventura	22- 3-23	6,802	sd. sh. drlg.
Shell Oil, No. 35 Gosnell, Ventura Ave., Ventura Co.	20- 3-23	9,366	flow. 1,565 b.d.
Shell Oil, No. 90 Taylor, Ventura Ave., Ventura Co.	30- 3-23	6,794	O.S. drlg.
General Pet., No. 17 Barnard, Ventura, Ventura Co.	23- 3-23	8,210	O.S. drlg.
General Pet., No. 13 Notten, Ventura, Ventura Co.	28- 3-23	9,484	redrlg. 7,860
Den Petroleum, No. 1 Devils Den, Kern Co.	20-25-19	4,722	idle
Tide Water A. O., No. 10-E-3 Lost Hills, Kern Co.	3-26-20	2,067	sd. sh. drlg.
Tide Water A. O., No. 11-B Lost Hills, Kern Co.	11-26-20	996	sd. sh. drlg.
Standard Oil, No. 4 United, Lost Hills, Kern Co.	2-26-20	1,296	rig. to pump
Standard Oil, No. 5 United, Lost Hills, Kern Co.	2-26-20	1,167	sd. sh. drlg.
Birch-Ranch Oil, No. 1 Lovett, McKittrick, Kern Co.	10-30-21	3,860	br. sh. drlg.
Michels, George, No. 1 Ynez, Temblor, Kern Co.	36-29-20	1,596	deepening
Standard Oil, No. 2 Randolph, Semi-Tropic, Kern Co.	14-27-23	4,065	sd. sh. drlg.
Continental Oil, No. 2 Wasco, Kern Co.	8-27-24	10,980	br. sh. drlg.
Belridge Oil, No. 43-26 North Belridge, Kern Co.	26-27-20	6,581	br. sh. drlg.
Belridge Oil, No. 53-26 North Belridge, Kern Co.	26-27-20	7,362	br. sh. drlg.
Belridge Oil, No. 61-26 North Belridge, Kern Co.	26-27-20	8,310	O.S. drlg.
Belridge Oil, No. 28-1 North Belridge, Kern Co.	1-28-20	8,000	cmtd. 8,000
Texas Co., No. 1 Martin, North Belridge, Kern Co.	22-27-20	8,120	br. sh. drlg.
General Pet., No. 1 St. Helens, Belridge, Kern Co.	12-28-20	304	sd. sh. drlg.
Eastmont Oil, No. 4 Olcese, Round Mountain, Kern	16-28-29	1,750	bailing
Shell Oil, No. 15 Freeman, Round Mountain, Kern Co.	20-28-29	1,860	pump. 940 b.d.
Honolulu Oil, No. 15 Round Mountain, Kern Co.	20-28-29	1,858	pump. 50 b.d.
Honolulu Oil, No. 23 Round Mountain, Kern Co.	20-28-29	1,591	sd. sh. drlg.
Honolulu Oil, No. 25 Round Mountain, Kern Co.	18-28-29	1,915	rig. to pump
Honolulu Oil, No. 43 Round Mountain, Kern Co.	18-28-29	2,152	O.S. drlg.
Tampico Pet., No. 3 Round Mountain, Kern Co.	17-28-29	1,867	O.S. drlg.
Cal-Western Oil, No. 5 C.C., Round Mountain, Kern	12-28-28	1,966	flow. 410 b.d.
Cal-Western Oil, No. 6 C.C., Round Mountain, Kern	12-28-28	110	sd. sh. drlg.
McDonald, H. A., No. 1 Larkin, Round Mountain, Kern	12-28-28	1,951	O.S. drlg.
Oils, Inc., of California, No. 7-2 Kern Front, Kern Co.	13-28-27	1,135	cleaning out
Malone, F. H., No. 3 Mabry, Kern Front, Kern Co.	4-28-27	2,090	gr. sd. drlg.
Tide Water A. O., No. 8 Wilcox, Kern Front, Kern Co.	4-28-27	2,785	pump. 95 b.d.
California Star Oil, No. 3-80 Kern Front, Kern Co.	22-28-27	1,841	sd. sh. drlg.
Texas Co., No. 9 Lehman, Kern Front, Kern Co.	23-28-27	2,065	rig. to pump
Well Developers, Inc., No. 1 Kern River, Kern Co.	16-28-28	3,307	dry; abd.
Fuhrman, A., No. 10 Kern River, Kern Co.	28-28-28	620	rig. to pump
Sleeper Ridge Oil, No. 1 Kern River, Kern Co.	15-29-28	850	sd. sh. drlg.
Vedder, D. G., No. 1 B.W.B., Mount Poso, Kern Co.	32-26-28	1,691	pump. 349 b.d.
Ring Oil, No. 2 Blackfoot, Mount Poso, Kern Co.	32-26-28	1,810	pump. 206 b.d.
Ring Oil, No. 29-4 Bowles, Mount Poso, Kern Co.	29-26-28	193	sd. sh. drlg.
Sunset Oil, No. 3 Bowles, Mount Poso, Kern Co.	21-26-28	1,569	O.S. drlg.
Vedder Pet., No. 29-2 Lambert, Mount Poso, Kern Co.	29-26-28	1,807	pump. 100 b.d.
Vedder Pet., No. 29-3 Lambert, Mount Poso, Kern Co.	29-26-28	1,863	gr. sd. drlg.
Vedder Pet., No. 1 Hyde, Mount Poso, Kern Co.	32-26-28	1,791	sd. sh. drlg.
Pacific O. & G., No. 1 Davidson, Mount Poso, Kern Co.	36-27-27	2,849	dry; abd.
Golden Bear Oil, No. 1 Hyde, Mount Poso, Kern Co.	32-26-28	1,693	sd. sh. drlg.
Framac Oil, No. 1 Brown, Mount Poso, Kern Co.	22-27-27	1,351	fish. D.P.
Desert Glow Oil, No. 2 Mount Poso, Kern Co.	14-27-27	1,232	bailing
Baker, H. W., No. 2 Mount Poso, Kern Co.	28-27-27	2,012	reaming
Union Oil, No. 2-B Tribe, Mount Poso, Kern Co.	28-27-28	1,167	sd. sh. drlg.
Western Gulf Oil, No. 8 Red Ribbon, Fruitvale, Kern	27-29-27	3,456	flow. 680 b.d.
Sandy Oil, No. 2 Fruitvale, Kern Co.	26-29-27	3,590	P.B. 3,497
Section Six Oil, No. 1 Mountain View, Kern Co.	6-31-29	5,365	sd. sh. drlg.
Mohawk Pet., No. 4 Fruit, Mountain View, Kern Co.	4-31-29	5,778	redrlg. 4,715
Ohio Oil, No. 6 Derby, Mountain View, Kern Co.	33-30-29	3,920	sd. sh. drlg.
Barnsdall Oil, No. 2-N Mountain View, Kern Co.	19-30-29	4,841	pump. 105 b.d.
Hogan Pet., No. 4 Symons, Mountain View, Kern Co.	4-31-29	6,557	pump. 110 b.d.
Hogan Pet., No. 5 Symons, Mountain View, Kern Co.	4-31-29	3,397	sd. sh. drlg.
Hogan Pet., No. 3 Peters, Mountain View, Kern Co.	5-31-29	5,212	rig. to pump
Hogan Pet., No. 4 Bankline, Mountain View, Kern Co.	4-31-29	1,976	sd. sh. drlg.
Hogan Pet., No. 9 Wharton, Mountain View, Kern Co.	32-30-29	5,793	sd. sh. drlg.
General Pet., No. 2 Freeport, Mountain View, Kern	19-30-29	4,760	completing
Berree Oil, No. 6 Seale, Edison, Kern Co.	5-30-29	2,315	idle
Monterey Expl., No. 7 Duff, Edison, Kern Co.	15-30-29	1,870	pump. 101 b.d.
Wood-Callahan Oil, No. 1 Harvey, Edison, Kern Co.	21-30-29	3,210	O.S. drlg.
General Pet., No. 1 Houchin, Arvin, Kern Co.	27-31-29	6,884	sd. sh. drlg.
Arkelo Oil, No. 1 Lerdo, Kern Co.	23-28-26	10,050	fish. D.P.
Union Oil, No. 1-34 Rio Bravo, Kern Co	34-28-25	10,915	sd. sh. drlg.
Continental Oil, No. 1 Rosedale, Kern Co.	12-29-26	10,210	fish. D.P.
Superior Oil, No. 9 KCL, Greeley, Kern Co.	3-30-26	7,425	sd. sh. drlg.
Standard Oil, No. 11-8 KCL, Greeley, Kern Co.	18-29-26	7,426	fish. D.P.
Standard Oil, No. 11-9 KCL, Greeley, Kern Co.	20-29-26	5,340	sd. sh. drlg.
Standard Oil, No. 11-10 KCL, Greeley, Kern Co.	17-29-26	1,431	sd. sh. drlg.
Standard Oil, No. 12-2 KCL, Greeley, Kern Co.	16-29-26	7,631	sd. sh. drlg.
Standard Oil, No. 1-F Greeley, Kern Co.	20-29-26	5,874	sd. sh. drlg.
Shell Oil, No. 4-30 K.C.L., Ten Section, Kern Co.	33-30-26	8,236	flow. 3,267 b.d
Shell Oil, No. 8-28-A K.C.L., Ten Section, Kern Co.	28-30-26	3,691	sd. sh. drlg.
Shell Oil, No. 61-31-B K.C.L., Ten Section, Kern Co.	30-30-26	7,965	O.S. drlg.
Ohio Oil, No. 3-E, K.C.L., Ten Section, Kern Co.	14-30-25	3,900	sd. sh. drlg.
Merritt Annex Oil, No. 6 Midway-Sunset, Kern Co.	25-12-24	2,718	O.S. drlg.
C. C. M. Oil, No. 43-21 Midway-Sunset, Kern Co.	21-32-23	2,300	pump. 140 b.d.
C. C. M. Oil, No. 45-21 Midway-Sunset, Kern Co.	21-32-23	1,672	sd. sh. drlg.
C. C. M. Oil, No. 1-U.S., Midway-Sunset, Kern Co.	30-32-24	2,985	cmtd. 2,415
Hallmark Oil, No. 7 Midway-Sunset, Kern Co.	25-12-24	2,790	pump. 581 b.d.
Richfield Oil, No. 13 Fellows, Midway-Sunset, Kern	6-32-23	1,500	bailing
Wreden Pet., No. 1 Midway-Sunset, Kern Co.	12-11-24	1,650	sd. sh. drlg.
Standard Oil, No. 3-13-D Midway-Sunset, Kern Co.	13-32-24	3,250	sd. sh. drlg.
Standard Oil, No. 37-23-D Midway-Sunset, Kern Co.	23-32-24	3,413	pump. 290 b.d.
National Oil, No. 30 Midway-Sunset, Kern Co.	35-32-23	465	sd. sh. drlg.
Texas Co., No. 1 Pioneer, Midway-Sunset, Kern Co.	33-11-23	3,154	sd. sh. drlg.
Texas Co., No. 25 Midway-Sunset, Kern Co.	32-32-24	3,170	O.S. drlg.
U. S. Pumping Equip., No. 2 Midway-Sunset, Kern Co.	12-11-24	1,498	sd. sh. drlg.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Bldg., building.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
C.P., casing pressure.
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
C.L., center line.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., plugging big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.R.T., rigging up rotary tools.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtr., or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.O.N.G., water shut off no good.
W.S.R. or W.O.S.R., wait on standard rig.
Wtr., water.

Transco Drlg. Co., No. 4 Grimm, Midway-Sunset, Kern	25-32-23	2,764	gr. sd. drlg.
Hall-Baker Co., No. 1 Tejon, Kern Co.	1-10-19	1,818	gr. sd. drlg.
Seaboard Oil, No. 1 Firebaugh, Madera Co.	27-12-25	6,388	dry; abd.
K. N. D. A., No. 4-18-J Kettleman North, Fresno Co.	18-21-17	11,220	gr. sd. drlg.
K. N. D. A., No. 43-34-J Kettleman North, Fresno Co.	34-21-17	5,093	sd. sh. drlg.
K. N. D. A., No. 41-4-P Kettleman North, Fresno Co.	4-22-17	7,880	hd. sh. drlg.
K. N. D. A., No. 83-4-P Kettleman North, Fresno Co.	4-22-17	6,751	fish. D.P.
K. N. D. A., No. 27-12-P Kettleman North, Kings Co.	12-22-17	5,490	br. sh. drlg.
K. N. D. A., No. 38-12-P Kettleman North, Kings Co.	12-22-17	2,162	sd. sh. drlg.
K. N. D. A., No. 6-6-Q Kettleman North, Kings Co.	6-22-18	6,830	br. sh. drlg.
K. N. D. A., No. 27-6-Q Kettleman North, Kings Co.	6-22-18	6,297	br. sh. drlg.
Standard Oil, No. 27-21-J Kettleman North, Fresno	21-21-17	3,151	sd. sh. drlg.
Standard Oil, No. 27-33-J Kettleman North, Fresno	33-21-17	7,225	br. sh. drlg.
Standard Oil, No. 2-11-P Kettleman North, Kings Co.	11-22-17	5,793	sd. sh. drlg.
Standard Oil, No. 76-1-P Kettleman North, Kings Co.	1-22-17	3,791	sd. sh. drlg.
Superior Oil, No. 1 Huffman, Kettleman No., Fresno	29-21-17	9,225	sd. sh. drlg.
Temblor Oil, No. 1-B Kettleman Middle, Kings Co.	25-23-18	8,275	hd. sh. drlg.
Hancock Oil, No. 1 Huasna, San Luis Obispo Co.	30-12-33	2,650	sd. sh. drlg.
Elba Oil, No. 1 Pajaro, Monterey Co.	6-13-2	3,970	cleaning out
Anderson, Amil, No. 1 Cholame, Monterey Co.	15-24-14	2,640	br. sh. drlg.
Texas Co., No. 2 Eureka, Humboldt Co.	22- 3-1	5,480	cleaning out
Amerada Pet., No. 1 Sacramento, Rio Vista, Solano	24- 4-2	2,315	sd. sh. drlg.
Tracy Drlg., No. 1 Hansen, Rio Vista, Solano Co.	25- 4-2	1,940	sd. sh. drlg.
Standard Oil, No. 1 Delano, Tulare Co.	36-24-23	8,396	sd. sh. drlg.
Magnet O. & G., No. 1 Delano, Tulare Co.	29-24-24	6,781	sd. sh. drlg.
Tulare Dome Oil, No. 1 Allensworth, Tulare Co.	17-21-23	3,125	idle
Standard Oil, No. 1 Hooper, Woodland, Yolo Co.	32- 9-1	4,028	form. test
Empire O. & G., No. 1 Woodland, Yolo Co.	8- 9-3	231	sd. sh. drlg.
Wilshire Oil, No. 1 Half Moon Bay, San Mateo Co.	20- 6-5	1.452	sd. sh. drlg.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Richfield Oil, No. 1 Howard, Los Angeles Co.	7- 3-14	6,630	sd. sh. drlg.
Richfield Oil, No. 1-SF El Segundo, Los Angeles Co.	18- 3-14	7,690	P.B. 7,615
Richfield Oil, No. 2 Elsie, El Segundo, Los Angeles	12- 3-15	7,050	Schist, drlg.
Union Oil, No. 3 El Segundo, Los Angeles Co.	18- 3-14	7,496	O.S. drlg.
Sunshine Oil, No. 1 El Segundo, Los Angeles Co.	12- 3-15	7,101	Schist, drlg.
Tide Water A. O., No. 1 El Segundo, Los Angeles Co.	8- 3-14	5,653	sd. sh. drlg.
Ohio Oil, No. 7 Gough, El Segundo, Los Angeles Co.	7- 3-14	7,144	Schist, drlg.
Ohio Oil, No. 8 Gough, El Segundo, Los Angeles Co.	7- 3-14	4,621	sd. sh. drlg.
Standard Oil, No. 2 Refinery, El Segundo, L. Angeles	13- 3-15	7,242	sd. sh. drlg.
Standard Oil, No. 3 Refinery, El Segundo, L. Angeles	13- 3-15	7,091	sd. sh. drlg.
Pac. Western Oil, No. 1 El Segundo, Los Angeles Co.	7- 3-14	6,849	fish. D.P.
Getty Oil, No. 1-A El Segundo, Los Angeles Co.	7- 3-14	166	sd. sh. drlg.
Douglas Oil, No. 9 Peck, Lawndale, Los Angeles Co.	20- 3-14	7,270	flow. S.W.
Young & Bryan, No. 1 Peck, Lawndale, Los Angeles	20- 3-14	7,247	flow. S.W.
Standard Oil, No. 84 L.A.I., Inglewood, Los Angeles	17- 2-14	1,455	cmtd. 1,455
B. C. L. Oil, No. 1 Torrance, Los Angeles Co.	5- 4-14	3,260	cmtd. 3,162
C. C. M. Oil, No. 34-T Torrance, Los Angeles Co.	16- 4-14	4,960	O.S. drlg.
Loma Verde Oil, No. 12 Torrance, Los Angeles Co.	16- 4-14	4,873	pump. water
Kavanaugh, E. C., No. 1 Palos Verdes, Los Angeles	17- 4-14	4,496	sd. sh. drlg.
Tide Water A. O., No. 4 Cypress, Potrero, L. Angeles	34- 2-14	3,874	sd. sh. drlg.
Shell Oil, No. 92 Reyes, Dominguez, Los Angeles Co.	33- 3-13	6,630	sd. sh. drlg.
Shell Oil, No. 49 Reyes, Dominguez, Los Angeles Co.	33- 3-13	5,327	cleaning out
Union Oil, No. 56 Callender, Dominguez, Los Angeles	33- 3-13	7,321	cmtd. 7,158
Union Oil, No. 57 Callender, Dominguez, Los Angeles	33- 3-13	3,764	sd. sh. drlg.
Union Oil, No. 45 Hellman, Dominguez, Los Angeles	33- 3-13	3,650	sd. sh. drlg.
Barnsdall Oil, No. 16 O'Dea, Rosecrans, Los Angeles	18- 3-13	6,741	flow. 315 b.d.
Union Oil, No. 35-H.P., Rosecrans, Los Angeles Co.	18- 3-13	2,780	sd. sh. drlg.
Union Oil, No. 17 Rosecrans, Los Angeles Co.	18- 3-13	6,320	sd. sh. drlg.
Macrate, A. N., No. 2 Rosecrans, Los Angeles Co.	17- 3-13	7,865	O.S. drlg.
Bolsa Chica Oil, No. 1 Rosecrans, Los Angeles Co.	20- 3-13	7,944	P.B. 7,270
Sharby Oil, No. 1 Playa Del Rey, Los Angeles Co.	22- 2-15	7,524	wet, abd.
Burt, A. G., No. 1 Newhall, Los Angeles Co.	36- 4-17	2,077	cleaning out
Barnsdall Oil, No. 2-S.F., Newhall, Los Angeles Co.	26- 4-17	5,084	fish. D.P.
Holbrook Pet., No. 1 Newhall, Los Angeles Co.	28- 4-16	6,250	P.B. 5,700
General Pet., No. 12 Ford, Wilmington, Los Angeles	4- 5-13	4,045	sd. sh. drlg.
General Pet., No. 17 Ford, Wilmington, Los Angeles	4- 5-13	5,440	sd. sh. drlg.
General Pet., No. 22 Ford, Wilmington, Los Angeles	4- 5-13	2,420	sd. sh. drlg.
General Pet., No. 4 Isco, Wilmington, Los Angeles	4- 5-13	3,660	sd. sh. drlg.
General Pet., No. 6 Isco, Wilmington, Los Angeles	4- 5-13	1,984	sd. sh. drlg.
Bankline Oil, No. 10-P.T., Wilmington, Los Angeles	34- 4-13	3,131	sd. sh. drlg.
Bankline Oil, No. 9-D.H., Wilmington, Los Angeles	34- 4-13	1,798	sd. sh. drlg.
Bankline Oil, No. 25-D.H., Wilmington, Los Angeles	34- 4-13	3,061	sd. sh. drlg.
Bankline Oil, No. 3-C.Y., Wilmington, Los Angeles	34- 4-13	3,487	pump. 223 b.d.
Baker Oil, No. 1 Wilmington, Los Angeles Co.	33- 4-13	910	sd. sh. drlg.
Black Gold Oil, No. 4-B Wilmington, Los Angeles Co.	32- 4-13	3,583	flow. 250 b.d.
Caminol Oil, No. 1-P Wilmington, Los Angeles Co.	33- 4-13	2,702	sd. sh. drlg.
Exeter Oil, No. 1 Banning, Wilmington, Los Angeles	32- 4-13	3,609	flow. 290 b.d.
Hall, F. C., No. 1 V.H., Wilmington, Los Angeles Co.	33- 4-13	2,677	sd. sh. drlg.
Macmillan Pet., No. 7-H Wilmington, Los Angeles Co.	32- 4-13	3,585	sd. sh. drlg.
O'Dell & Dunlap, No. 1 Wilmington, Los Angeles Co.	33- 4-13	3,634	sd. sh. drlg.
Pongratz, No. 2 Banning, Wilmington, Los Angeles	33- 4-13	3,115	sd. sh. drlg.
Ring Oil, No. 5 Wilmington, Los Angeles Co.	33- 4-13	3,615	flow. 220 b.d.
Royalty Serv., No. 842-2 Wilmington, Los Angeles Co.	33- 4-13	5,380	flow. 361 b.d.
Selegna Drlg., No. 12 Wilmington, Los Angeles Co.	33- 4-13	2,171	sd. sh. drlg.
Texas Co., No. 1 Refinery, Wilmington, Los Angeles	34- 4-13	3,500	pump. 100 b.d.
Union Pacific, No. 22 Wilmington, Los Angeles Co.	34- 4-13	3,377	flow. 480 b.d.
Union Pacific, No. 37 Wilmington, Los Angeles Co.	33- 4-13	3,453	flow. 160 b.d.
Union Pacific, No. 38 Wilmington, Los Angeles Co.	34- 4-13	3,014	sd. sh. drlg.
Union Pacific, No. 40 Wilmington, Los Angeles Co.	33- 4-13	2,681	sd. sh. drlg.
Union Pacific, No. 41 Wilmington, Los Angeles Co.	34- 4-13	3,436	sd. sh. drlg.
Union Pacific, No. 55 Wilmington, Los Angeles Co.	4- 5-13	2,497	sd. sh. drlg.
Union Pacific, No. 57 Wilmington, Los Angeles Co.	4- 5-13	3,170	sd. sh. drlg.
Union Pacific, No. 4-C Wilmington, Los Angeles Co.	33- 4-13	3,085	sd. sh. drlg.
Union Pacific, No. 6-C Wilmington, Los Angeles Co.	33- 4-13	2,294	sd. sh. drlg.
Camroo Oil, No. 1 Sterns, Pomona, Los Angeles Co.	33- 1-9	1,750	sd. sh. drlg.
Julian, C. A., No. 1 Koch, Walnut, Los Angeles Co.	5- 2-9	2,685	gr. sd. drlg.
Texas Co., No. 3 Flower, Long Beach, Los Angeles	19- 4-12	4,843	bailing
Texas Co., No. 4 Bauman, Long Beach, Los Angeles	19- 4-12	2,796	sd. sh. drlg.
Rico Pet., Inc., No. 1 Long Beach, Los Angeles Co.	30- 4-12	1,960	sd. sh. drlg.
Richfield Oil, No. 10 Denni, Long Beach, Los Angeles	19- 4-12	4,976	bailing
Richfield Oil, No. 4 Keon, Long Beach, Los Angeles	19- 4-12	1,961	sd. sh. drlg.
Exeter Oil, No. 5 Transport, Long Beach, Los Angeles	19- 4-12	1,163	sd. sh. drlg.
Union Oil, No. 100 Santa Fe Springs, Los Angeles Co.	6- 3-11	10,789	fish. D.P.
Texas Co., No. 7-W Santa Fe Springs, Los Angeles	6- 3-11	6,470	P.B. 3,868
Continental Oil, No. 40 Bixby, Seal Beach, Orange Co.	2- 5-12	5,485	hd. sh. drlg.
Wilshire Oil, No. 6-B Huntington, Orange Co.	10- 6-11	5,375	rig. to pump
Standard Oil, No. 15 Thomson, Huntington, Orange	12- 6-11	3,820	pump. 186 b.d.
Johnston Drlg., No. 1 Sunset Beach, Orange Co.	20- 5-11	6,230	br. sh. drlg.
Brea Canyon Oil, No. 36 Brea Canyon, Orange Co.	2- 3-10	4,000	redrlg. 3,780
Standard Oil, No. 127 Murphy, West Coyote, Orange	18- 3-10	2,163	sd. sh. drlg.
Bartholomae Oil, No. 5 East Coyote, Orange Co.	22- 3-10	4,708	P.B. 4,633
Dolicia Oil, No. 3 A.U.W., East Coyote, Orange Co.	24- 3-10	4,089	pump. 35 b.d.
Tide Water A. O., No. 42 East Coyote, Orange Co.	22- 3-10	3,650	pump. 70 b.d.
Arrowhead Oil, No. 2 Bradford, Richfield, Orange Co.	32- 3-9	4,632	P.B. 4,555
Union Oil, No. 29 Chapman, Richfield, Orange Co.	30- 3-9	8,610	redrlg. 8,265
Angelus Oil, No. 1 Jacobs, Yorba, Orange Co.	22- 3-9	1,976	sd. sh. drlg.
Hjorth & Mohr, No. 1 Yorba, Orange Co.	22- 3-9	1,359	hd. sd. drlg.
Beverly Hills Pet., No. 1 Fricke, Yorba, Orange Co.	21- 3-9	1,869	hd. sd. drlg.
Mid-State Pet. Co., No. 1 Oliver, Yorba, Orange Co.	22- 3-9	1,742	P.B. 1,687
West American Oil, No. 1 Tustin, Orange Co.	14- 5-9	6,070	dry; abd.
Shell Oil, No. 1-H Anaheim, Orange Co.	9- 4-10	6,585	sd. sh. drlg.

KANSAS

Week Ending October 2 (Descriptions are East unless marked otherwise)

Barber County

Helmerich & Payne et al No. 1 Blunk Est., C SE sec. 18-34-13w. Drlg. 4,625 ft.

Olson Oil Co. and Skelly Oil Co. No. 1 Elsea, SW SE NW sec. 27-32-14w. Viola 4,966-88 ft., T.D.; rng. csg.

Palmer Oil Corp. et al No. 1 Warwick, C NW sec. 29-31-10w. Rig.

W. I. Southern, Inc., No. 1 Davis, SE SE NE sec. 24-34-15w. T.D. 5,375 ft.; shot; bailing.

Barton County

Armer & Vernon Oil & Gas Co. No. 1 Persons, SW SW SE sec. 7-17-13w. U.R. 8-in. 2,835 ft.

Brouk and National Ref. Co. No. 1 Gory, NW SW sec. 10-17-13w. Drlg. 2,200 ft.

Martin & Foraker et al No. 1 Dick Est., NE SW SW sec. 31-19-11w. Rig.

C. L. Price No. 1 Hammeke, NE NE SW sec. 12-18-12w. Sil. 3,415-27 ft.; 1,800 ft. O.I.H.

Shell Pet. Corp. No. 1 Peterman, SE NE SE sec. 13-16-14w. T.D. 3,363 ft.; 2,700 ft. O.I.H.

Ralph Wixson et al No. 1 Buhrle, SE SE NE sec. 14-16-13w. S.D. 3,175 ft.

Butler County

Rex & Morris et al No. 1 Stephens, SW SW SE sec. 35-23-3e. H.F.W. 2,692-96 ft., T.D.; D.&A.

Chautauqua County

C. L. Brosius et al No. 1 Garrett, NW SW NW sec. 26-32-11. H.F.W. 2,076 ft., T.D.; P.B. 1,545 ft.; C.O.

W. G. Buffington No. 1 Fisher, CWL SW NW sec. 10-34-9e. S.D. 1,050 ft.

C. R. Craft No. 1 Lagree, SE NW NE sec. 8-32-12e. T.D. 2,080 ft.; P.B. 687 ft.

Harrison No. 1 Brown, NE SE NE sec. 19-34-10. S.D. 510 ft.

Ingot Oil Co. No. 1 McKee, SW NE SW sec. 21-32-12. Drlg.

I. W. Siegel No. 1 Temple, SW cor. sec. 31-32-12. Rig.

S. H. Vineard No. 1 Hughes, NE NE SE sec. 13-32-12. S.D. 426 ft.

Cowley County

Arthur Brewer No. 1 Starkey, SW NE sec. 16-30-4. T.D. 2,802 ft.; swbd. 6 B.O. P.H.

Pryor & Lockhart No. 1 Brown, NE SE SE sec. 34-33-3e. Drlg. 3,600 ft.

Ellis County

Aylward Prod. Co. et al No. 1 Berens, SE SE sec. 10-14-16w. Drlg. 750 ft.

Brunson Drlg. Co. et al No. 1 Weisner, SE SW SE sec. 31-13-17w. T.D. 3,606 ft.; acd.; to deepen.

Buffalo Oil Co. No. 1 Phillip, NE NE sec. 18-14-16w. H.F.W. 3,455-60 ft.; P.B. to Lansing L.; swbd. 200 B.O. in 12 hrs.

Colonial Oil Co. and Bernheimer No. 1 Albert, SW SW NE sec. 31-12-18w. Fsg. 1,260 ft.

Lario O. & R. Co. No. 1 Bell, NW NW NE sec. 8-12-18w. Drlg. 2,600 ft.

L. M. Reynolds No. 1 Polcyn, SE SE NE sec. 24-13-16w. Drlg. 3,000 ft.

P. G. Reynolds et al No. 1 Karlin, NW cor. sec. 13-12-18w. U.R. 8-in. 2,565 ft.

C. E. W. Skiles et al No. 1 Jensen, SW SE NE sec. 26-12-18w. Drlg. 2,980 ft.

Earl Wakefield et al No. 1 Burnett, NW NW NE sec. 1-11-18. T.D. 3,552 ft.; 2,600 ft. O.I.H.

Ellsworth County

Hinkle et al No. 1 Alden, SE SE SW sec 17-17-10w. Anhy. 585 ft.

Greenwood County

Eagle Oil Co. No. 1 Stine, NE NE SE sec. 13-28-10. Drlg. 300 ft.

Ward McGinnis et al No. 1 Henly Estate SW cor. sec. 25-25-9. T.D. 2,234 ft.; H F.W.; P.B.; cmt. 6-in.

S. Van Devanter et al No. 1 Dove, NE SE SW sec. 12-28-11. T.D. 650 ft.; skd. rig.

Whittaker & Johnson No. 1 Cannon, CEL SE NW sec. 8-26-13. Rig.

Harvey County

Allison et al No. 1 Hawks, SE SW NE sec. 16-24-1w. Drlg.

Jackson County

Lemmick Oil Co. No. 1 Marble Savings Bank, NE cor. sec. 26-9-14. Spd. and S.D.

Kearny County

J. L. Murphy No. 1 Masonic Home, C NW sec. 1-26-36w. S.D. 1,468 ft.

Kingman County

Carter Oil Co. No 1 Davis, C E½ NE NE sec. 24-28-8w. T.D. 4,122 ft.; W.O.O.

Logan County

Morgan, Flynn, Cobb et al No. 1 McMullen, C NW sec. 9-13-37w. S.D. 3,489 ft. for repairs.

Marion County

Western Kansas O. & R. Co. et al No. 1 Suderman, SE SW NW sec. 22-20-2e Drlg. 3,120 ft.

McPherson County

C. E. Ash Drlg. Co. No. 1 Broman, NE NE NW sec. 19-17-4w. Drlg. 2,808 ft.

H. C. Becker No. 1 Mason, SW NE sec. 9-17-1w. Sil. 3,357-3,470 ft.; D.&A.

Bradley Bros. No. 1 Barnhoit, SW SW SE sec. 30-20-5w. Chat 3,292 ft.; T.D. 3,336 ft.; P. 115 B.O. in 14 hrs.; down 5 hrs.

Fred C. Frank et al No. 1 Doles, SE NW NE sec. 12-19-1w. Set 8-in. 2,775 ft.; S.D.

Wamhoff et al No. 1 Nuse, SE NE SW sec. 18-18-4w. S.D. 1,850 ft.

Meade County

Pacific Mid-West Co. No. 1 Rexford, NE SE SW sec. 8-30-29w. Drlg. 900 ft.

Mitchell County

Siedhoff et al No. 1 Greiss, SW SW SE sec. 16-8-10w. S.D. 4,022 ft.

Ness County

Trojan O. & G. Co. No. 1 Page Milling Co., SE SE NW sec. 36-18-26w. Drlg. 2,700 ft.

Newton Dev. Co. No. 1 Tenny, NW NW SE sec. 19-18-25w. Inc. oil 4,400-02 ft.; 3,500 ft. O.I.H. at 4,406 ft.; S.D.

Osborne County

Fred C. Chaddox and Atlantic Ref. Co. No. 1 Slater, NE SW NE sec. 33-10-15w. U.R. 8-in. 2,880 ft.

F. E. Fullerton & Son No. 1 Moray, NE SE SW sec. 27-10-12w. S.D. 500 ft.

Phillips County

C. W. Davidson et al No. 1 Elliff, SE NE NE sec. 35-5-18w. S.D. 350 ft.

Pratt County

Atlantic Ref. Co. et al No. 1 Runyon, SW NW NE sec. 11-27-13w. T.D. 4,437 ft.; P.B. 4,300 ft.; fsg. 4,310 ft.

Skelly Oil Co. et al No. 1 Adams, SE NW NE sec. 2-28-11w. Drlg. 4,100 ft.

Stanolind O. & G. Co. No. 1 Hartsell, NW SW sec. 14-26-12w. Drlg. 3,830 ft.

Reno County

Lib Phillips et al No. 1 McPheeters, NE NE NW sec. 22-26-8w. Spd. and S.D.

Sam Schneider et al No. 1 Kroecker, NE cor. sec. 12-22-5w. Fsg. 2,435 ft.

Westgate-Greenland et al No. 1 Popp, SW SW NE sec. 7-25-4w. Rig.

Rice County

Bell O. & G. Co. et al No. 1 Wilkins, NW NW NE sec. 23-21-9w. Simp. 3,591 ft.; Sil. 3,643 ft.; T.D. 3,662 ft.

Boyle & Grossman No. 1 Diener, SE NE sec. 35-19-1w. Drlg. 1,150 ft.

Gerbrand-Pulse Oil & Drilling Co. No. 1 Wellman, SW cor. sec. 22-21-9w. U.R. 8-in. 2,785 ft.

Gillespie et al No. 1 Strong, NE NW sec. 9-18-8w. Spd. and S.D.

John Hanna et al No. 1 Marshall, NE NW NW sec. 30-18s-8w. S.D. 1,515 ft.

Skiles et al No. 1 Campbell, SE SE NE sec. 28-19-9w. T.D. 2,995 ft.; hole full oil; tstg.

E. Witt et al No. 1 Fair, NW SE SE sec. 4-22-8w. Fsg. 4,245 ft.

Rooks County

C. R. Craft et al No. 1 Ziegler, NE SW sec. 8-10-16w. Drlg. 3,070 ft.

Inam et al No. 1 Fike, SW cor. sec. 9-9- 17w. T.D. 3,326 ft.; pmpd. 50 B.O. and 35 B.W. in 8 hrs.

J. H. Lester No. 1 Methene, SE SE NE sec. 29-10-20w. C.O. 3,875 ft.

Rush County

Douwe & Brouk No. 1 Lebsack, SE SE NE sec. 13-16-16w. Sil. 3,492-95 ft.; 1,500 ft. sulfur water in hole in 2½ hrs.; T.D. 3,512 ft.; S.D.O.

Earl Wakefield et al No. 1 Zimmerman, SE SE SW sec. 7-16-18w. S.D. 3,105 ft.

Wakefield & Brouk No. 1 Kerbs, NW NW SE sec. 11-17-16w. S.D. at 150 ft.

Russell County

Cities Service Oil Co. et al No. 1 Eichman, SW SE sec. 12-15-14w. Drlg. 2,540 ft.

Cities Service Oil Co. and Texas Co. No. 1 Boxberger B, NE cor. sec. 23-13-15w. Set 8-in. 3,025 ft.; C.O.

Emrichs et al No. 1 Anderson, NE SE SW sec. 33-15-11w. Spd. and S.D.

Murfin and Vernon O. & G. Co. No. 1 Pearson, NE cor. sec. 31-15-15w. Spd. and S.D.

Parks No. 1 Opdycks, SW cor. sec. 20-14- 13w. Drlg. 800 ft.

Phil-Han Oil Co. No. 1 Deines, NE NE NW sec. 33-14-14w. Drlg. 500 ft.

Trapp Drlg. Co. et al No. 1 Polcyn, NE SE sec. 34-14-15w. Drlg. 2,180 ft.

Vinkler & Koch No. 1 Jones, SE SE NW sec. 22-14-13w. Sil. 3,180 ft.; S.D.O.

Sedgwick County

Fulton et al No. 1 fee, NE SE sec. 35-28- 1e. T.D. 765 ft.; U.R. 8-in.

McKnab No. 1 Garrett, SE SW SW sec. 18-29-2e. Drlg. 80 ft.

I. W. Murfin et al No. 1 Martin, SE NW sec. 32-28-1e. Drlg. 2,400 ft.

National Ref. Co. No. 1 fee, SE NE SE sec. 26-27-2e. T.D. 2,016 ft.; mudding off gas.

Palmer Oil Corp. No. 1 Royal, NE cor. sec. 15-28-1w. T.D. 3,899 ft.; D.&A.

W. G. Talbott et al No. 1 Downs Est., SE SE NW sec. 32-28-2e. T.D. 2,232 ft.; 3,922,000 ft. gas.

Union O. & R. Co. et al No. 1 Howell, SW cor. sec. 6-29-1e. Drlg. 1,950 ft.

Stafford County

W. P. Faulkner No. 1 Moses, NW SW sec. 9-22-13w. Fsg. 915 ft.
Kessler et al No. 1 Jenkins, SE NE sec. 15-25-12w. Sil. 4,195-4,214 ft.; D.&A.
Fred P. Rust et al No. 1 Johnson, NW SW sec. 29-25-12w. Drlg. 2,920 ft.

Sumner County

Cities Service Oil Co. No. 1 McCoy, SE SW sec. 11-35-2e. Drlg. 3,026 ft.
Magnolia Pet. Co. No. 1 Baird, SW SE SE sec. 2-30-4w. Drlg. 1,835 ft.
W. M. McKnab No. 1 Blair, SW cor. sec. 7-30-1e. Drlg. 3,215 ft.
R. J. Wixson No. 1 Newton, SE SE sec. 21-30-2e. S.D. 1,975 ft.

Trego County

Central Commercial Oil Co. No. 1 Locker, C SW sec. 12-14-22w. Drlg. 3,140 ft.

Thurman Hill et al No. 1 Lawson, SW SW NW sec. 7-14-22w. Twisted off drill pipe at 2,700 ft.
Phillips Pet. Co. No. 1 Trego, C SE SW sec. 14-12-23w. W.O.C. 3,935 ft.
F. L. Thorn et al No. 1 Koeppen, SE SE SW sec. 31-14-24w. H.F.W. 4,423-29 ft.; D.&A.

Wallace County

Wilcox O. & G. Co. No. 1 Parker, SE SE NE sec. 9-11-40w. Prep. to spud.

Woodson County

Becker Bros. et al No. 1 Vann, NW SW SE sec. 22-25-14. T.D. 1,487 ft.; U.R. 6-in.
Fred Rapp No. 1 Houghland, NW NW SE sec. 2-25-15. S.D. 1,520 ft.
Seibel No. 1 Kerschner, CNL NE NE sec. 3-26-15. S.D. 1,498 ft.
Steinle No. 1 Kash, SE SE sec. 4-26-15. S.D. 1,570 ft.

OKLAHOMA

Week Ending October 2

NORTHERN OKLAHOMA

Beckham County

Mid-American Oil Co. No. 1-A Biscoe, SW cor. sec. 28-8-22w. T.D. 2,227 ft.; S.D.

Caddo County

Clyde Becker et al No. 1 Pharris, SE SE NW sec. 24-6-12w. T.D. 6,235 ft.; S.D.O.
Indian Terr. Illum. Oil Co. No. 1 Dome-Bo, C NE SE sec. 29-6-10w. Drlg. 4,468 ft.

Cleveland County

Harper-Turner No. 1 Pollock, C W½ NW NW sec. 13-9-2w. T.D. 475 ft.; W.O.C.
W. R. Hollenbeck No. 1 Norman, NW NW NE sec. 17-9-2w. Drlg. 7,646 ft.

Creek County

M. W. Mosier et al No. 1 Holcomb, SE SW NW sec. 19-18-8. T.D. 3,018 ft.; P.B. 3,015 ft.; drlg. cmt.

Garvin County

Carter Oil Co. No. 1 Potts, C E½ SE NW sec. 36-1n-3w. Drlg. 2,777 ft.
B. C. D. Edwards No. 1 Clark, NE cor. sec. 16-3n-3e. Drlg. 2,370 ft.

Grady County

Doyle Pet. Co. No. 1 Huffine, NW NW SE sec. 30-5-8w. Drk.
J Oil Corp. No. 1 Thomas, SW NW NW sec. 14-4-5w. Drlg. 7,973 ft.

Greer County

J. I. Medlin et al No. 1 Broudie, NW cor. sec. 5-6n-20w. Drlg. 20 ft.

Haskell County

Jontinental Oil Co. No. 1 Ferguson, SW SE NE sec. 33-8-20. Drlg. 6,931 ft.

Hughes County

W. O. Allen No. 1 Barnard, SW cor. sec. 24-8-8. T.D. 4,274 ft.; P.B. 3,423 ft.; est. 2,000,000 ft. gas; comp.
Burke-Greis Oil Co. No. 1 Rhea, SW SW SE sec. 14-10-9. Drlg. 2,030 ft.
E. H. Moore, Inc., No. 1 Buck, NW SW SW sec. 21-8-10. T.D. 4,025 ft.; U.R. 7-in. 3,892 ft.
Phillips Pet. Co. No. 1 Becker, NE NW SW sec. 8-5-10. Drlg. 3,626 ft.
Pure Oil Co. No. 1 Rogers, SE SE NE sec. 18-8-12. T.D. 390 ft.; rng. 12½-in. csg.

Kay County

E. J. Shaffer et al No. 1 Hauschild, NW NW SW sec. 8-28-1w. T.D. 3,533 ft.; flw. 335 B.O. in 24 hrs.

Kiowa County

Hughes & Reese No. 1 Fultz, SE cor. sec. 10-6-18w. T.D. 810 ft.; S.I.
Kiowa Oil Corp. No. 1 Finder, C SW NE sec. 4-6-20w. T.D. 1,050 ft.; S.D.
H. L. Wirick et al No. 1 Noske, SE SE NW sec. 1-6n-17w. T.D. 1,205 ft.; S.D.

Latimer County

Clark Drlg. Co. et al No. 1 Wilson, C SE SE sec. 15-5-18. T.D. 6,515 ft. in Atoka; T.A.

Lincoln County

Ardie Oil Co. No. 1 State, NE NE SE sec. 16-14-4. T.D. 4,984 ft.; set csg. 4,950 ft.
Continental Oil Co. et al No. 1 Community, NW NW SE sec. 7-15-5. T.D. 4,530 ft.; S.D.
Riley & Talbot et al No. 1 Weidler, NW SW NW sec. 20-17-2e. Drlg. 720 ft.

Logan County

Sunray Oil Co. and Olson Drlg. Co. No. 1 Canning, SW SW NE sec. 31-17-1w. Drlg. 5,430 ft.

Noble County

Darby Pet. Corp. No. 1 McCoy, SE SE SW sec. 24-23-2w. Cg. 3,581 ft.
Seaboard Western Oil Co. et al No. 1 Guthrie, NW NW NE sec. 6-20-2w. T.D. 5,435 ft.; rng. 6⅝-in. csg.

Okfuskee County

F. W. Merrick No. 1 Mackey, NE NE SW sec. 29-11-10. Drlg. 3,355 ft.
Riverland Oil Co. No. 1 Board, NE NW SE sec. 10-13-10. Set 6-in. 2,788 ft.; T.D. 2,840 ft.

Pawnee County

J. F. McManmon et al No. 1 School Land, NW NW NE sec. 16-21-5. Set 7-in. 3,198 ft., T.D.; W.O.C.

Pittsburg County

Okla. Dist. Oil Co. No. 1 Beeler, NE NE SW sec. 7-7-14. T.D. 5,165 ft.; C.O.
Phillips Pet. Co. No. 1 Gilcrease, NW NW SE sec. 16-7-12. Drlg. 3,245 ft.

Pontotoc County

Boettcher O. & G. Co. No. 1 Cann, SE NW NE sec. 25-4n-7e. T.D. 4,347 ft.; S.D.
Kerlyn Oil Co. No. 1 Pratt, SW SE NE sec. 6-4-4e. Wilcox 2,290-2,355 ft.; T.D.; rng. Schlumberger.
Norbia Oil Co. No. 1 McBride, NE NE SW sec. 10-2n-5e. Loc.
Papoose Oil Co. et al No. 1 Jones, NW SE NW sec. 2-4-5. Viola 2,595 ft.; T.D. 2,840 ft.; run Schlumberger; S.D.O.
Union Dev. Co. No. 1 Abbott, SW NW NE sec. 34-3-6. T.D. 3,320 ft.; drill pipe stuck. S.D.

Pottawatomie County

Mid-Continent Pet. Corp. No. 1 Ne-Thah-Pea-Se, SE SE NE sec. 24-11-4. Dol. 4,853-86 ft.; flwg. 135 B.O.P.D.; comp.
Roy S. Nash et al No. 1 Miller, C N½ NE SE sec. 29-6-3e. T.D. 4,415 ft.; fsg.

Seminole County

E. W. Jones et al No. 1 Belford, NE SE NE sec. 9-9-8. Drlg. 4,597 ft.
Stanolind O. & G. Co. and Amerada Pet. Corp. No. 1 Salina, SE NE NW sec. 4-5-6. T.D. 3,317 ft.; P.B. 3,216 ft.; acd.; swbd. 27 B.O. and 4 B.W. in 24 hrs.

Texas County

Hagey et al No. 1 Becker, C NE sec. 4-1n-13ecm. Drlg. 2,400 ft.
Hagey et al No. 1 Peck, C NE sec. 6-1n-13ecm. Rig.

Washita County

John Koberg No. 1 Harms, NW NW NE sec. 6-10-16w. T.D. 4,260 ft.; S.D.

SOUTHERN OKLAHOMA

Atoka County

A. L. Larson No. 1 Mason, SW SE SE sec. 35-1n-14. T.D. 200 ft.; D.&A.
C. M. Sheldon and Gardner Pet. Co. No. 1 Lee, NE NW SW sec. 2-4s-10e. T.D. 842 ft.; P.B. 816 ft.

Coal County

Carter Oil Co. No. 1 Claytor, C W½ NE SW sec. 27-2n-9e. S.S.O.&G. 6,066-76 ft.; set 9-in. csg. 6,061 ft.
Phillips Pet. Co. No. 1 Beck, SE SW SW sec. 6-1n-9e. Drlg. 3,804 ft.

Comanche County

M. J. Andrichak No. 1 Korthouse, NW NE SW sec. 35-2n-10w. T.D. 1,095 ft.; 2,000,000 ft. gas; S.I.

Jackson County

Ace Gutowsky No. 1 Booker, NW cor. sec. 33-2n-18w. T.D. 1,012 ft.; S.D.O.
Ace Gutowsky No. 1 Howard, NE SW NW sec. 10-3n-19w. T.D. 950 ft.; S.D.
E. L. Lippert et al No. 1 Miller, NW cor. sec. 4-2n-18w. T.D. 713 ft.; bailing.

Johnston County

Patton et al No. 1 McCrummins, C SW SW NE sec. 16-1s-6e. S.D. 1,345 ft.
W. T. Sheldon No. 1 Chapman, C NW NW sec. 26-4s-6e. Drlg. 2,400 ft.

Marshall County

Paul Robb et al No. 1 Vittitoe, C NE SE sec. 11-5s-4e. O.W.D.D.; C.O. to 720 ft.; S.D.

Murray County

Meyer & Greenup No. 1 Arbuckle, NW NW NE sec. 18-2s-3e. Spd. and S.D.
O. O. Owens No. 1 Fryer, NE SE NE sec. 34-1s-3e. T.D. 2,574 ft.; 1,400 ft. W.I.H. S.D.
Sinclair Prairie Oil Co. No. 1 Lancaster Trust, C SW NE sec. 10-1-2e. Cd. 4,155-4,268 ft.; to core ahead.

Pushmataha County

Erle Halliburton et al No. 1 Bagwell, SW NE NE sec. 30-3s-15e. Drlg. 5,265 ft.

Stephens County

Jack Cohen No. 1 Pierce, NE NE NW sec. 24-2s-6w. Drlg. 1,550 ft.

Coline Oil Co. No. 1 Johnson, C SW SE SE NE sec. 1-2n-8w. T.D. 10,000 ft.; to run Schlumberger.
Chas. Newsom No. 1 Pfile, SW cor. sec. 1-2s-7w. Drlg. 3,375 ft.
Ed Parsons No. 1 Blake, C SW NW sec. 22-2n-8w. Drlg. 5,040 ft.; 2,500 ft. of fluid in hole.

Tillman County

Cavens et al No. 1 Southerland, SW SW NW sec. 35-4s-16w. T.D. 44 ft.; S.D.
Gulf Oil Corp. No. 1 Prichard, SE NW SE sec. 32-3s-16w. Drlg. 4,605 ft.
Tom Walker No. 1 Bowman, SW SW NW sec. 10-4s-17w. S.D. 200 ft.

ARKANSAS

Columbia County

Standard of La. No. 1 J. P. McKean, SW sec. 8-16s-22w. Drlg. 6,922 ft.
Tide Water-Seaboard Oil Co. No. 1 Crumpler, SW NE SW sec. 24-17-19w. Drlg. 3,515 ft.

Cross County

Manning & Martin, Inc., No. 1 Park-Greseck, NW NE NE sec. 4-6n-5e. Drlg. 4,330 ft.

Hempstead County

H. D. Easton et al No. 1 R. M. LaGrone sec. 5-12-26. W.O. 2,940 ft.
Shephard & Todd et al No. 1 Smith, NW SW NE sec. 11-11-25. S.D. 2,290 ft.

Miller County—Rodessa

Anding & Bird No. 4 Skipper, SW NW SW sec. 11-20-28. 10¾-in. 2,017 ft.; T.D. 2,047 ft.
F. W. Burford No. 1 A. J. Cross, E½ SE NE sec. 11-20-28. 9⅝-in. 2,135 ft.; drlg. 3,961 ft.
F. W. Burford No. 1 Ahern, S½ NE SW sec. 10-20-28. 7-in. 6,065 ft.; T.D. 6,107 ft.
F. W. Burford No. 1 August, S½ SE SW sec. 8-20-27. Cg. 6,170 ft.
F. W. Burford No. 2 A. A. Capps, sec. 14-20-28. Comp.; est. 10,000,000 ft. gas; T.D. 6,085 ft.
F. W. Burford No. 1 S. B. Davis, SW cor. SE NE sec. 11-20-28. Drlg. 5,910 ft.
F. W. Burford No. 3 Easton, sec. 11-20-28. Comp.; flw. 50 B.P.H.; T.D. 6,075 ft.
F. W. Burford No. 1 Gardner-Means, SW NW sec. 11-20-27. Cg. 6,060 ft.
F. W. Buford No. 2-B G. G. Gerrald, sec. 15-20-28. 9⅝-in. 2,050 ft.
H. L. Hunt No. 1 Womack, SE sec. 10-20-28. 9⅝-in. 2,050 ft.; 7-in. 5,977 ft.; T.D. 6,130 ft.
H. L. Hunt No. 2 Womack, NE SW SE sec. 10-20-28. Drlg. 5,945 ft.
H. L. Hunt No. 3 Womack, NW SW SE sec. 10-20-28. Drlg. 4,005 ft.
Kroll & Travis No. 1 Dickson, SW SE NW sec. 11-20-28. 9⅝-in. 2,104 ft.; drlg. 3,275 ft.
Roger Lacey No. 1 Grogan, SE cor. sec. 15-20-28. Cg. 5,956 ft.
Wm. M. Layton No. 4 Terry, SW cor. sec. 14-20-28. Rng. 7-in.; T.D. 6,060 ft.
R. H. Long No. 1 Greer, SW NE SE sec. 10-20-28. Drlg. 4,231 ft.
McClanahan et al No. 1 J. P. Greer, SE SW NW sec. 11-20-28. 9⅝-in. 2,020 ft.; drlg. 4,080 ft.
McClanahan et al No. 3 Capps, sec. 11-20-28. Drlg. 5,290 ft.
McClanahan et al No. 4 Capps, NE NE SW sec. 11-20-28. Drlg. 3,565 ft.
McClanahan et al No. 5 Capps, NW SW SW sec. 11-20-28. Drlg. 5,490 ft.
McClanahan et al No. 1-B Capps, N½ SW SW sec. 12-20-28. Will core 6,010 ft.
J. R. Ostrom No. 1 J. O. Gerrald, NW E¼ sec. 15-20-28. Drlg. 4,430 ft.
Roberts Bros. Drlg. Co. No. 2 W. A. Capps, SW NW SE sec. 16-20-28. Drlg. 5,325 ft.
Roberts Bros. Drlg. Co. No. 3 W. A. Capps, SE SW NE sec. 16-20-28. Drlg. 5,440 ft.
Texas Canadian Oil Co. No. 1 Dickson, SE NW sec. 11-20-28. Drlg. 5,348 ft.

Pulaski County

A. L. Kitselman No. 2 A. L. Kitselman, Jr., SE SE SW sec. 2-1s-13e. Cg. 1,198 ft.

Union County—Schuler

Lion Oil Ref. Co. No. 1-A Edna Morgan, O.W.D.D.; drlg. 6,980 ft.
W. D. Wingfield et al No. 1 Sou. Kraft Corp., SW NE sec. 18-19-14. D.&A.; T.D. 5,329 ft.

LOUISIANA

NORTH LOUISIANA PROVEN

Caddo—Rodessa

F. W. Burford No. 1 Pitts, NW sec. 1-23-16. Cg. 6,054 ft.
Gulf Ref. Co. No. 2 Campbell, C sec. 4-23-16. 9⅝-in. 2,067 ft.; drlg. 5,484 ft.
Magnolia Pet. Co. No. 1 G. W. Hardy, sec. 1-23-16. Cg. 6,055 ft.
R. W. Norton No. 7 Starke, NW sec. 17-23-16. 9⅝-in. 2,042 ft.; drlg. 4,922 ft.
R. W. Norton No. 8 Starke, NW sec. 17-23-16. 7-in. 5,906 ft.; comp.; flw. 16 B.P.H.; T.D. 5,991 ft.
R. W. Norton No. 9 Starke, NW sec. 17-23-16. 6⅝-in. 5,908 ft.; comp.; flw. 20 B.P.H.; T.D. 6,000 ft.
R. W. Norton No. 10 Starke, NW sec. 17-23-16. Drlg. 5,614 ft.
Standard Oil Co. No. 3 McCoy, NE cor. NE NW sec. 10-23-16. R.U.
Standard Oil of La. No. 1-C Parker, NE NE NW sec. 9-23-16. Swbg.; T.D. 6,012 ft.
Union Prod. Co. No. 6 Starke, SW cor. sec. 8-23-16. 13⅜-in. 246 ft.; drlg. 1,980 ft.

N. LOUISIANA WILDCATS

Bossier Parish

Ark.-La. Gas Co. No. 4 R. O. Roy, sec. 18-17-11. Drlg. 3,771 ft.
L. W. Dennis No. 1 D. T. Roos, SW NW NW sec. 13-19-12. Will set 7-in.; T.D. 850 ft.
Triangle Drlg. Co. No. 1-A Schuler Est., SE NW sec. 13-17-12. Rng. 7-in.; T.D. 3,118 ft.

Caddo Parish

W. D. Ambrose No. 3-B Pender, NW SW sec. 11-20-15. 6-in. 2,186 ft.; T.D. 2,196 ft.; tstg.
La. Oil Prod. Co. No. 11-B Muslow, sec. 4-20-15. W.O.S.R. 2,180 ft.
La. Oil Prod. Co. No. 12-B Muslow, sec. 4-20-15. Drlg. 2,146 ft.
Orr et al No. 1 Acme fee, C sec. 15-21-16. S.D. 1,882 ft.
G. W. Montgomery No. 1 Caddo Lvy. Bd., SE SW sec. 11-19-15. Drlg. 1,530 ft.
L. J. Davis No. 1 Stiles, SE sec. 17-21-16 8-in. 1,007 ft.; W.O.S.R. 1,019 ft.
La. Oil Prod. Co. No. 10-B Muslow, SW SE SW sec. 4-20-15. T.D. 2,172 ft.; W.O.S.R. 2,194 ft.
Prairie River Synd. No. 1 Hutchinson, SW NW sec. 15-15-12. Drlg. 9,086 ft.
Surf-Maji Oil Co. No. 3 Self, SE sec. 10-20-15. 6-in. 2,180 ft.

Claiborne Parish

Atlantic Ref. Co. et al No. 1-C Patton, sec. 29-21-4. Drlg. 2,985 ft.
R. L. Bauman No. 1 C. S. L. Patton, NW SW NW sec. 1-20-5. 5½-in. 5,329 ft.; T.D. 5,347 ft.
Gulf Rfg. Co. No. 2 S. E. Tatum, S½ SW SW sec. 32-21-4. Comp.; flw. 20 B.P.H.; T.D. 5,309 ft.
Harry Hanbury No. 2-C R. Vaughn, N½ SE SE sec. 25-21-5. Comp.; flw. 52 B.P.H.; T.D. 5,254 ft.
Hollifield & McFarland No. 1 W. H. Patton, E½ NE NE sec. 2-20-5. Comp.; flw. 85 B.P.H.; T.D. 5,246 ft.
Hollifield & McFarland No. 2 H. W. Patton, W½ NE NE sec. 2-20-5. Drlg. 4,230 ft.
T. L. James No. 1 Baker, sec. 25-21-5. W.O. 5,222 ft.
T. L. James No. 1 D. E. Fowler, W½ NE SW sec. 32-21-4. Swbg.; T.D. 5,224 ft.
Lyons & Neely No. 1 Simms, NE NE sec. 32-20-5. Drlg. 4,125 ft.
Magnolia Pet. Co. No. 1 Fowler, W½ SE SW sec. 32-21-4. 7-in. 5,231 ft.; T.D. 5,254 ft.
W. L. McClanahan No. 1 J. T. Lewis, W½ SW SE sec. 25-20-7. R.U.
Olson Drlg. Co. No. 2 J. T. Bean, N½ NW NW sec. 33-21-4. Comp.; flw. 50 B.P.H.; T.D. 5,141 ft.
A. O. Olson No. 2-B T. F. Patton, N½ SE SW sec. 29-21-4. 7-in. 5,110 ft.; T.D. 5,128 ft.
Olson Drlg. Co. No. 3-A T. F. Patton Est., SE cor. SW sec. 30-21-4. Comp.; flw. 85 B.P.H.; T.D. 5,185 ft.
C. R. Schuster No. 3 Patton Est., N½ NE NE sec. 1-20-5. Drlg. 5,151 ft.
Scouts Oil Corp. No. 1 Bean, E½ NE NW sec. 32-21-4. 5½-in. 5,136 ft.; T.D. 5,159 ft.
Shreveport Oil Corp. No. 1 Edwards, NE sec. 16-20-5w. Pmpd. 100 B.P.D. and pmpd. off; T.D. 5,438 ft.
Standard Oil of La. No. 4 F. B. King, sec. 35-21-5. Comp.; flw. 61 B.P.H.; T.D. 5,304 ft.
United Gas et al No. 1 J. W. Stevenson, SE SW SE sec. 6-19-5. Comp.; est. 50,000,000 to 75,000,000 ft. gas; T.D. 5,670 ft.
G. H. Vaughn et al No. 1 Eppinger, SW sec. 29-21-4. 5½-in. 5,112 ft.; T.D. 5,129 ft.

Concordia Parish

Coastal Mineral & Dev. Co. No. 1 Winsten, sec. 23-7-9e. Rng. Schlumberger; T.D. 2,250 ft.
Edward A. Addy et al No. 1 Posternack, NW SW sec. 49-8n-93. S.D. 50 ft.

De Soto Parish

Clear Lake Oil Co. No. 1 J. A. Woolums, NW sec. 29-12-12. S.D. 2,540 ft.
Pullman Oil Co. No. 4 Ramsey, NE SW NW sec. 36-11-11. W.O. 2,934 ft.

LaSalle Parish

Buck Granshaff et al No. 1 Russell, sec. 25-10-1e. W.O.S.R.; T.D. 1,514 ft.

Lincoln Parish

J. E. Burford, Sr., No. 1 Hanna, SE SW SE sec. 34-18-4w. D.&A.; T.D. 6,612 ft.
Gigantic Oil Co. No. 1 R. L. Sanderson,

NW SE NW sec. 30-18-1w. 16-in. 179 ft.
T. L. James No. 1 J. J. Spence, SW NE sec. 11-17-4. S.D. 6,641 ft.
Ludel Oil Corp. No. 1 Gill, NE NE NW sec. 36-20-2w. Drlg. 5,195 ft.
Lyons & Neely No. 2 H. W. Patton, S½ SW NW sec. 6-20-4. 5½-in. 5,312 ft.; T.D. 5,335 ft.
Lyons & Neely No. 2-B H. E. Patton, C S½ NE SW sec. 6-20-4. Drlg. 4,100 ft.
Magnolia Pet. Co. No. 1 F. Corbin, W½ NE NE sec. 6-20-4. Tstg.; T.D. 5,336 ft.
Magnolia Pet. Co. No. 2 F. Corbin, NE cor. sec. 6-20-4. Drlg. 3,817 ft.
E. H. Moore, Inc. No. 1 Arcadia Comm. Bank, C NW sec. 22-18-5. Drlg. 4,118 ft.
Red Iron Drlg. Co. No. 1 T. F. Patton, NW SW NE sec. 6-20-4. Drlg. 4,300 ft.

Red River Parish

Gulf Ref. Co. No. 28 L. E. Kennedy, NW sec. 25-13-11. Comp.; pmpg. 12 B.P.D.; T.D. 2,552 ft.
Gulf Ref. Co. No. 42 E. T. Robinson, NW sec. 25-13-11. Drlg. 2,505 ft.
W. J. Hunter No. 2 Long Bell Lbr. Co., SW NW sec. 20-19-9. S.D. 4,004 ft.
Jones et al No. 1 Morston, SW SE sec. 14-13-11. Drlg. 2,495 ft.
J. C. Prine No. 1 Haynes, SW sec. 20-13-10. W.O.S.R. 2,555 ft.
T. S. Shaw No. 5 Wilkinson, NW SE SE sec. 4-12-10. Cg. 2,580 ft.
W. K. Williams No. 2 Padock, SE SW NW sec. 33-13-11. 6⅝-in. 2,350 ft.; T.D. 2,500 ft.

Webster Parish

V. L. Foster No. 2 J. M. Mixon, SE sec. 21-21-10. Drlg. 5,187 ft.
Magnolia Pet. Co. No. 4 Aarnes-Cox, NW sec. 22-21-10. Drlg. 7,110 ft.
Ohio Oil Co. No. 47 Bodcaw Acct. 2, SW SE sec. 15-21-10. Drlg. 7,810 ft.
Ohio No. 1 S. P. D. Coyle and W. Cox, SW SW SE sec. 23-21-10. Drlg. 7,136 ft.
Ohio Oil No. 1 T. Crichton, Acct. No. 2, SE NE sec. 21-21-10. Drlg. 8,235 ft.
Ohio No. 7-B R. L. Holloway, 586 ft. N. 756 ft. E line, sec. 23-21-10. Drlg. 7,810 ft.
A. G. Oliphant et al No. 1 Banks, NE NE sec. 34-21-10. Drlg. 7,473 ft.
Ohio Oil Co. No. 1 D. W. Merritt, SW cor. sec. 14-21-10. Drlg. 7,400 ft.
Standard Oil Co. of La. No. 7 Mrs. M. F. Davis, NE NE NW sec. 23-21-10. Drlg. 6,425 ft.
Standard Oil Co. of La. No. 2-B Mrs. M. E. Gray, NE NE NW sec. 26-21-10. Drlg. 6,515 ft.
United Gas No. 6 Tillman, NE sec. 28-21-10. 13⅜-in. 849 ft.; drlg. 1,478 ft.
Woodley Pet. Co. No. 2-B L. C. Cox. Drlg. 7,414 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 1 Brookshire, sec. 66-12s-3e. T.D. 11,909 ft.; stuck D.S.; using reversing tool.

Anse La Butte—St. Martin Parish

Crusader Pet. Co. No. 3-B Begnaud. Drlg. sh.&L. 3,769 ft.

Bay St. Elaine—Terrebonne Parish

F. J. LeBlanc No. 2 Wurzlow, sec. 17-22s-18e. S.D. 910 ft.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 4 Wilbert, sec. 74-9s-10w. T.D. 4,106 ft.; P.B. sdtrkd.; drlg. sh. 4,812 ft.

Bayou Cocotrie—Terrebonne Parish

Shell Pet. Corp. No. 2 Pelican, sec. 19-17s-15e. Core sd. 9,000 ft.
Shell Pet. Corp. No. 3 Pelican, sec. 19-17s-15e. Drlg. sh. 8,932 ft.

Bayou De Allemands—St. Charles Parish

Amerada Pet. Corp. No. 1 St. Charles Ld. Co., sec. 38-15s-20e. Drlg. sd. 2,530 ft.; (cor.).

Big Lake—Cameron Parish

Union Sulphur Co. No. 1 P. J. Hebert, sec. 18-12s-8w. 6⅝-in. csg. 8,441 ft.; drlg. sh. 9,261 ft.
Union Sulphur Co. No. 2 J. O. Hebert, sec. 18-12s-8w. Drlg. sh. 4,729 ft.

Bosco—Acadia Parish

Superior Oil Co. No. 1 J. L. Larcade, sec. 34-8s-3e. Drlg. sd. and clay 830 ft.

Caillou Island—Terrebonne Parish

Texas Co. No. 52 State, sec. 19-23s-20e. Drlg. sd.&sh. 1,761 ft.

Cameron Meadows—Cameron

Burton-Sutton Oil Co. No. 19 Sch. Ld., sec. 16-14s-13w. Drlg. sh.&L. 3,244 ft.

Charenton—St. Mary Parish

Pan American Prod. Co. No. 1 Dolph, sec. 36-13s-9e. Drlg. sh. 5,425 ft.
Pan American Prod. Co. No. 1 Eucer, sec. 11-13s-9e. R.U.
Pan American Prod. Co. No. 1 Landry, sec. 25-13s-9e. Drlg. sd.&sh. 8,799 ft.
Pan American Ref. Co. No. 4 Laws Realty Co., sec. 30-13s-10e. T.D. 10,066 ft.; fsg.
Pan American Prod. Co. No. 2 South Coast Corp., sec. 31-13s-9w. Drlg. sh. 5,265 ft.
Pan American Prod. Co. No. 1 Veeder, sec. 30-13s-10e. T.D. 9,462 ft.; P.B. 2,615 ft.; 7-in. csg. 2,615 ft.; perf. csg. 2,589-91 ft.; made squeeze job; to reperf. csg. P.B. and sdtrkd.; T.D. 2,595 ft.; oil sd.; tstg.

Choctaw—Iberville Parish

Standard Oil Co. No. 10 Grove, sec. 52-9s-11e. T.D. 5,303 ft. in salt; D.S. stck. P.B. 4,650 ft.; sdtrkd.; drlg. sd.&rk. in sdtrkd. hole 4,765 ft.
Standard Oil Co. No. 7 Gay, sec. 52-9s-11e. Cmtd. 13⅜-in. csg. 956 ft.; T.D. 4,694 ft.; run 9⅝-in. csg.; tstg.

Darrow—Ascension Parish

Humble O. & R. Co. No. 16 Community, sec. 29-10s-2e. Drlg.
Kiva Oil Co. No. 1 Duplessis, sec. 69-10s-2w. R.U.

Dog Lake—Terrebonne Parish

Texas Co. No. 18 State, sec. 5-22s-16e. T.D. 7,606 ft.; P.B. 1,564 ft.
Texas Co. No. 20 State, sec. 5-22s-16e. Drlg. sh. 5,801 ft.

Edgerly—Calcasieu Parish

Crusader Pet., Inc., No. 1 Miller Bros., sec. 27-9s-11w. 7-in. csg. 6,078 ft.; drlg. sh. 6,124 ft.

Four Isle—Terrebonne Parish

Texas Co. No. 9 L.L.&E., sec. 24-21s-16e. T.D. 6,946 ft.; fsg.

Garden Island—Plaquemines Parish

Texas Co. No. 24 State, sec. 37-23s-33e. Drlg. sd. 4,673 ft.

Gillis—Calcasieu Parish

Union Sulphur Co. No. 7 Kaufman, sec. 13-9s-8w. T.D. 7,079 ft.; 5-in. csg. 7,052 ft.; swbd. S.W.; pull screen.
Union Sulphur Co. No. 2 Mary McIvor, sec. 14-9s-8w. Drk.

Hackberry—Cameron Parish

W. T. Burton No. 3 Lewis, sec. 22-12s-10w. R.U.
W. T. Burton No. 4 Vincent, sec. 22-12s-10w. T.D. 4,631 ft.; 7-in. csg. 4,570 ft.; comp. for gas well.
W. T. Burton No. 1 Porter Ellender, sec. 27-12s-10w. Drlg. sh. 5,301 ft.
M. P. O'Meara No. 1 Rigmaden heirs, sec. 22-12s-10w. Drk.
Stanolind O. & G. Co. No. 6 Duhon, sec. 22-12s-10w. Drlg. sd.&sh. 2,221 ft.
Stanolind O. & G. Co. No. 8 Carter & Sweeney, sec. 22-12s-10w. R.U.
Stanolind O. & G. Co. No. 10 Carter & Sweeney, sec. 22-12s-10w. Drk.
Stanolind O. & G. Co. No. 11 Carter & Sweeney, sec. 22-12s-10w. 10¾-in. csg. 1,451 ft.; drlg. sh. 3,615 ft.
Stanolind O. & G. Co. No. 26 Gulf Ld., sec. 22-12s-10w. R.U.
Stanolind O. & G. Co. No. 53 State, sec. 22-12s-10w. 10¾-in. csg. 1,930 ft.; T.D. 6,648 ft.; P.B. 4,080 ft.; drlg. sd.&sh. 5,292 ft.
Texas Co. No. 23-B State, sec. 12-12s-9w. T.D. 5,448 ft.; P.B. 2,409 ft.; T.D. 7,274 ft.; P.B. to sdtrk.

Lockport-Cameron Parish

Magnolia Pet. Co. No. 35 Miller, sec. 9-10s-9w. Drlg. sh. 4,470 ft.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 1 Banta, sec. 40-13s-9e. Set 7-in. csg. 9,768 ft.; T.D. 10,480 ft.; tstg.
Herton Oil Co. No. 5 Roans, sec. 40-13s-9e. T.D. 8,098 ft.; recmtd. csg.

Jennings—Acadia Parish

Frank W. Bennett et al No. 1 Brethern and Christ Church, sec. 41-7s-2w. T.D. 7,107 ft.; D.S. stuck; shot; fsg.
W. T. Burton No. 3 J. J. Roboria, sec. 41-9s-2w. T.D. 7,206 ft.; 7-in. csg. 7,085 ft. I.P. 37 B.P.H.; ¼-in. ck.
W. T. Burton No. 4 Roboria, sec. 41-9s-3w. R.U.
Cosmo Pet. Co. No. 1 M. E. Crusel, sec. 42-9s-2w. T.D. 7,226 ft.; I.P. 965 B.P.H.; ¼-in. ck.
Glassell & Glassell No. 2 McFarland, sec. 41-9s-2w. Drlg. sh. 3,107 ft.
Glassell & Glassell No. 3 McFarlain, sec. 41-9s-3w. Drlg. sh. 6,585 ft.
Glassell & Glassell No. 4 Trushell, sec. 42-9s-3w. Drk.
Louisiana Crusader Oil Co. No. 1 Lake Oil fee, sec. 45-9s-2w. P.B. T.D. 3,601 ft.; 7-in. csg. 3,575 ft.
M. P. O'Meara No. 1 Moresi, sec. 41-9s-2w. Drk.
Jolly Pet. Co. No. 5 Jennings-Haywood, sec. 46-9s-2w. Drk.
Reiter Foster Oil Co. No. 2 Crusel, sec. 42-9s-2w. R.U.
S. Rhodes No. 2 Iowa-Jennings, sec. 45-9s-2w. Abd. 3,315 ft.
Stanolind O. & G. Co. No. 19 Houssiere-Latreille, sec. 47-9s-2w. R.U.
Superior Oil Co. No. 8 Leckelt, sec. 42-9s-2w. R.U.
Superior Oil Co. No. 7 Leckelt, sec. 42-9s-2w. R.U.
Superior Oil Co. No. 5 Leckelt, sec. 42-9s-2w. T.D. 7,146 ft.; I.P. 132 B.P.D.; 7/64-in. ck.
Superior Oil Co. No. 4 Jennings-Haywood, sec. 41-9s-2w. Drlg. sd. 4,638 ft.
Superior Oil Co. No. 2 Moresi, sec. 41-9s-2w. T.D. 7,131 ft.; 7-in. csg. 7,131 ft.; I.P. 368 B.P.D.; 13/64-in. ck.
Superior Oil Co. No. 3 Moresi, sec. 41-9s-2w. T.D. 6,748 ft.; stuck D.S.

Lafitte—Jefferson Parish

Texas Co. No. 7 L.L.E., sec. 20-17s-24w. Drlg. sh. 5,725 ft.
Texas Co. No. 2 Milling, sec. 20-17s-24e. Drlg. sh.&L. 9,993 ft.
Texas Co. No. 1 State-Bayou Norman, sec. 28-17s-24e. Drlg. sh. 11,841 ft.

Lake Barre—Terrebonne Parish

Texas Co. No. 141 State, sec. 40-21s-19e. Drlg. sdy. L. 3,676 ft.

Lake Hermitage—Plaquemines Parish

Gulf Ref. Co. No. 7 Lafourche, sec. 13-18s-25e. Drlg. sh. 8,086 ft.

Lake Pelto—Terrebonne Parish

Texas Co. No. 18 State, sec. 17-23s-18e. T.D. 1,551 ft.; comp. as S.W. disposal well.
Texas Co. No. 13 State, sec. 8-23s-18e. Drlg. sd. 2,619 ft.

Lake Washington—Plaquemines Parish

Humble O. & R. Co. No. 25 Cockrell, sec. 35-20s-26e. Drlg. sdy. sh. 4,930 ft.

Lockport—Calcasieu Parish

Magnolia Pet. Co. No. 35 Miller, sec. 9-10s-9w. Drlg. sh. 4,470 ft.

Long Lake—Lafourche Parish

Fohs Oil Co. No. 2 State, sec. 65-17s-19e. R.U.
Fohs Oil Co. No. 3 State, sec. 65-17s-19e. 10¾-in. csg. 2,743 ft.; drlg. sh. 7,954 ft.

New Iberia—Iberia Parish

Wm. Hellis No. 3 Schwing, sec. 57-12s-7e. T.D. 5,019 ft.; P.B. and sdtrkd.; salt 5,-509 ft.; P.B. 2,650 ft.; T.D. 3,949 ft.; 7-in. csg. 3,920 ft.
Texas Co. No. 3 Bryant, sec. 25-12s-7e. R.U.
Wm. Hellis No. 9 Bernard, sec. 54-12s-7e. T.D. salt 5,171 ft.; P.B. and sdtrkd.; drlg. sh. 3,940 ft.
Wm. Hellis No. 10 Bernard, sec. 54-12s-7e. R.U.
Wm. Hellis No. 11 Bernard, sec. 54-12s-7e. Drlg. sdy. sh. 2,730 ft.
Wm. Hellis No. 6 Bullock-Burke, sec. 25-12s-7e. T.D. 4,817 ft.; P.B. and sdtrkd.; T.D. 4,769 ft.; P.B. 2,700 ft.; W.O.C.
Texas Co. No. 3 Coleste, sec. 25-12s-7e. T.D. 5,132 ft.; P.B. T.D. 5,049 ft.; I.P. 9 bbls. dist. per day.
Texas Co. No. 4 Duke, sec. 26-2s-7e. R.U.
Texas Co. No. 7-B Hanzen, sec. 54-12s-7e. T.D. 4,546 ft.; P.B. 3,825 ft.; sdtrkd.; drlg. L. rk. 4,213 ft.

North Crowley—Acadia Parish

Humble O. & R. Co. No. 1 Antonohlenforst, sec. 45-8s-1e. R.U.

Roanoke—Jeff Davis Parish

Humble O. & R. Co. No. 4 Taylor, sec. 72-9s-4w. Drlg. sh. 6,437 ft.

South Jennings—Jeff Davis Parish

Loffland Bros. No. 1 Fontenot, sec. 16-10s-3w. Drlg. sh. 1,956 ft.

South Roanoke—Jeff Davis Parish

Union Sulphur Co. et al No. 1 T.R.S. Farms Co., sec. 23-10s-4w. T.D. 9,151 ft.; 7-in. csg. on bttm.; perf. csg. 8,598-8,600 ft.; stuck tstg. tool; fsg.

Starks—Calcasieu Parish

Capital Oil Co. No. 1 Lutcher-Moore, sec. 24-9s-13w. R.U.
Lutcher Moore No. 2 fee, sec. 19-9s-12w. T.D. 4,184 ft.; 7-in. csg. 4,149 ft.; I.P. 200 B.P.D.; 11/64-in. ck.
Turnbull et al No. 2 Industrial Lbr. Co., sec. 19-9s-12w. T.D. 4,861 ft.; S.D.

Sulphur—Calcasieu Parish

Union Sulphur Co. No. 847 fee, sec. 29-9s-10w. T.D. 5,570 ft.; 7-in. csg. 5,570 ft.; sanded up; P.B. 4,064 ft.; drlg. sh. in sdtrkd. hole 4,272 ft.
Union Sulphur Co. No. 849 fee, sec. 29-9s-10w. Drlg. sd.&L. 4,935 ft.
Union Sulphur Co. No. 850 fee, sec. 29-9s-10w. Drlg. sd. 5,092 ft.
Union Sulphur Co. No. 851 fee, sec. 29-9s-10w. R.U.

St. Martinsville—St. Martin Parish

Tide Water Oil Co. No. 1-B Smedes, sec. 18-11s-6e. Drlg. sdy. sh. 6,885 ft.

Valentine—Lafourche Parish

Pan American Prod. Co. No. 9-A Harang, sec. 8-17s-20e. Drlg. sh. 4,051 ft.
Pan American Prod. Co. No. 10 Harang, sec. 7-17s-20e. Drlg. sd. 6,714 ft.
Pan American Prod. Co. No. 11 Harang, sec. 8-17s-20e. Drlg. sh. 4,967 ft.

Venice—Plaquemines Parish

Tide Water Oil Co. No. 4 Manhattan Fruit Co., sec. 26-21s-30e. Drlg. sh. 2,830 ft.

Vinton—Calcasieu Parish

Katina Oil Co. No. 2 Vincent, sec. 34-10s-12w. T.D. 4,140 ft.; S.R. hole.
Superior Oil Co. No. 1 Gray, sec. 4-11s-12w. Drlg. sd.&sh. 5,792 ft.
Vinton Pet. Co. No. 23 Vincent, sec. 34-10s-12w. Drlg. gbo.&L. 2,035 ft.

White Castle—Iberville Parish

T. D. Humphray No. 1 E. B. Adams, sec. 1-11s-12e. Drlg. sd. and gvl. 5,235 ft.
Shell Pet. Corp. No. 5 Shingle, sec. 12-11s-12e. 10¾-in. csg. 1,400 ft.; drlg. 2,830 ft.

S. LOUISIANA WILDCATS

Acadia Parish

H. E. Dalton No. 1 Setting, sec. 17-7s-1w. T.D. 5,106 ft.; fsg.
Gulf Oil Corp. No. 1 Eucila Broussard, sec. 49-10s-2w. R.U.
Humble O. & R. Co. No. 1 R. A. Sarver, sec. 35-10s-1e. Drlg. sdy. sh. 7,740 ft.
Magnolia Pet. Co. No. 1 Duson, sec. 14-8s-2w. Drlg. sh. 3,151 ft.
T. S. Markley No. 1 Daigle, sec. 19-7s-2e. Drlg. sh. 5,666 ft.

Calcasieu Parish

D. & D. Oil Co. No. 2 Lutcher-Moore, sec. 1-8s-13w. T.D. 8,340 ft.; run 9⅝-in. csg. drlg. plug; csg. collspd.; will P.B. and sdtrk.
Union Sulphur Co. No. 1 J. A. Bel, sec. 10-10s-10w. Drk.

Cameron Parish

Humble O. & R. Co. No. 1 Miami Corp., sec. 8-14s-5w. 20-in. pipe set 188 ft.; T.D. 3,052 ft.; run 13⅜-in. csg.
Pure Oil Co. No. 2 State, sec. 14-13s-3w. Drlg. sh. 9,076 ft.

Cameron Parish—Gulf of Mexico

Superior Oil Prod. Co. et al No. 1 State-Gulf of Mexico, 3,800 ft. W, 6,200 ft. S of SE cor. of irregular sec. 4-15s-8w. R.U.R.

East Baton Rouge Parish

Cavalier Oil Co. No. 1 Elliott, sec. 3-8s-2e. T.D. 6,127 ft.; D.S. stuck.

Evangeline Parish

Schlicher Prod. Co. No. 1 Denois Ld. & St. Stone Co., sec. 35-3s-1w. 13⅜-in. csg. 720 ft.; top cap rk. 3,105 ft.; abd.

Iberia Parish

Texas Co. No. 2-B Vermilion Bay, sec. 20-16s-5e. Drlg. sdy. sh. 4,919 ft.

Jefferson Parish

Triangle Oil Co. No. 1 Conroe, sec. 125-12s-11e. Drlg. sdy. L. 3,740 ft.

Jefferson Davis Parish

Continental Oil Co. No. 1 M. H. Van Geffen, sec. 32-10s-3w. Loc.
Union Sulphur Co. No. 1 Calcasieu National Bank, sec. 12-9s-6w. R.U.

Lafourche Parish

Amerada Pet. Corp. No. 1 South Coast Corp., sec. 34-15s-15e. T.D. 7,451 ft.; oil sd.; rmg.
Gulf Oil Corp. No. 3 State P.P., sec. 36-23s-21e. Recvd. 1,000 ft. of oil on 6-min. D.S.T. at 6,749-6,846 ft.; 9⅝-in. csg. 6,832 ft.; drlg. 7,121 ft.; rec. 2,000 ft. P.L.O. on D.S.T. 6,958-70 ft.; T.D. 7,269 ft.; P.B. 6,971 ft.; drlg. plug.
Wm. Helis No. 2 City of New Orleans, sec. 19-23s-23e. R.U.

Plaquemines Parish

Gulf Oil Corp. No. 3 State (Jackson dist). T.D. 5,442 ft.; sd.; oil odor; S.D.O.
Humble O. & R. Co. No. 9 Orleans Levee Bd., sec. 12-18s-15e. Drlg. sd.&sh. 335 ft.

St. Bernard Parish

Southern Sulphur Co. No. 2 State Lake Borgne, sec. 38-14s-15e. 13⅜-in. csg. 303 ft.; S.D. 3,440 ft.

St. Martin Parish

Texas Co. No. 10 St. Martin, sec. 15-8s-7e. Drlg. S.W. sd. 6,023 ft.

St. Mary Parish

Texas Co. No. 1 State-Bateman Lake, sec. 21-16s-12e. 7⅝-in. csg. 10,515 ft.; drlg. sh. 11,317 ft.

Terrebonne Parish

Barnsdall Oil Co. No. 1 Dilbert, Stark & Brown Sur., sec. 110-18s-15e. Spd.

Vernon Parish

Castor Creek Drlg. Co. No. 1 Llano Del Rio, Inc., sec. 34-2n-9w. Drk.

TEXAS

Week Ending October 2

GULF COAST FIELDS

Hastings—Brazoria County

Humble O. & R. Co. No. 2-D W. F. Beers, Perry and Austin Sur. 9⅝-in. csg. 1,-247 ft.; I.P. 642 B.P.D.; ¼-in. ck.; T.D. 6,080 ft.
Humble O. & R. Co. No. 8-B Brown, Perry and Austin Sur. T.D. 6,080 ft.; 5½-in. csg. 5,996 ft.; I.P. 664 B.P.D.; ¼-in. ck.
Humble O. & R. Co. No. 9-B Brown, Perry & Austin Sur. Drlg. sd. 2,447 ft.
Humble O. & R. Co. No. 8 R. D. Hacen, Wm. Henry Sur. Drlg. sh. 5,213 ft.
Humble O. & R. Co. No. 1 W. H. McDeed, H.T.&B. Sur. No. 30. T.D. 6,080 ft.; 5½-in. csg. 5,920 ft.; I.P. 675 B.P.D.; ¼-in. ck.
Humble O. & R. Co. No. 1 W. C. Tullos, H.T.&B. Sur. No. 29. R.U.
Navarro Oil Co. No. 1-A Callahan, H.T.& B. Sur. No. 29. R.U.
Pearland Oil Co. No. 1 C. H. Alexander, H.T.&B. Sur. No. 28. T.D. 6,080 ft.; sd.; tstg.
Producers Inv. Co. No. 1 C. H. Alexander, H.T.&B. Sur. No. 28. Cg. sh.&sd. 5,-958 ft.
Stanolind No. 6 Brown, H.T.&B. Sur. No. 29. R.U.
Stanolind O. & G. Co. No. 3-B W. H. Avitts, H.T.&B. Sur. Drk.
Stanolind O. & G. Co. No. 3 Barnett, H. T.&B. Sur. No. 29. Drlg. 800 ft.
Stanolind O. & G. Co. No. 5 Blount, B. T. Masterson Sur. R.U.
Stanolind O. & G. Co. No. 7-B C. D. Brown. Drlg. sh.&L. 6,057 ft.
Stanolind O. & G. Co. No. 3 Condon, H. T.&B. Sur. No. 29. Drlg. L. 4,010 ft.
Stanolind O. & G. Co. No. 4 Condon, H. T.&B. Sur. No. 29. R.U.
Stanolind O. & G. Co. No. 11-B Curkett, H.T.&B. Sur. No. 30. Drlg. sh. 5,940 ft.
Stanolind O. & G. Co. No. 15-B M. Curkett, H.T.&B. Sur. No. 30. Drlg. sd. 1,544 ft.

Stanolind O. & G. Co. No. 14-B H. H. Ford, H.T.&B. Sur. No. 29. R.U.
Stanolind O. & G. Co. No. 8 R. O. Furface, B.B.B.&C. Sur. T.D. 6,080 ft.; tstg.
Stanolind O. & G. Co. No. 6 J. F. Law, H. T.&B. Sur. No. 36. T.D. 6,080 ft.; tstg.
Stanolind O. & G. Co. No. 2 Matsushita, H. Stevens Sur. Drlg. sh. 5,576 ft.
Stanolind O. & G. Co. No. 2-C H. Moore, R. A. Magee Sur. Drlg. sh. 5,576 ft.
Stanolind O. & G. Co. No. 4-C Moore, R. A. Magee Sur. R.U.
Stanolind O. & G. Co. No. 9 L. D. Shaw, H. T.&B. Sur. No. 36. Drlg. sh. 5,512 ft.
Stanolind O. & G. Co. No. 1 J. H. Sparks, H.T.&B. Sur. No. 29. R.U.
Stanolind O. & G. Co. No. 2 W. B. Thornton, H.T.&B. Sur. No. 29. Drlg. sh. 757 ft.
Stanolind O. & G. Co. No. 16 Turner, A. C.H.&B. Sur. No. 1. R.U.
Stanolind O. & G. Co. No. 11 B. I. Turner. A.C.H.&B. Sur. No. 1. 10¾-in. csg. 1,242 ft.; drlg. sh. 5,572 ft.
Stanolind O. & G. Co. No. 12 Turner, A. C.H.&B. Sur. No. 1. Drlg. sd. 6,000 ft.
Stanolind O. & G. Co. No. 2 Wagner. Drk.
Stanolind O. & G. Co. No. 9 Williams, A. C.H.&B. Sur. Drlg. 1,350 ft.

Lockridge—Brazoria County

Gulf Oil Corp. No. 3 Baker, J. W. Hall Sur. T.D. 6,365 ft.; W.O.C.
Gulf Oil Corp. No. 4 Carrie Baker, J. W. Hall Sur. Drk.
Gulf Oil Corp. No. 1 Great Southern, E. D. Robertson Sur. Core sd. 6,483 ft.
Kirby Pet. Co. No. 2 Carrie Baker, J. W. Hall Sur. 10¾-in. csg. 1,400 ft.; drlg. sh. 2,961 ft.
McCurdy and Johnson No. 1 State, Brazos River. R.U.
Shell Pet. Corp. No. 4 Ramsey, J. W. Hall Sur. Drlg. sh. 6,430 ft.

Manvel—Brazoria County

Texas Co. No. 26 Houston Oil Field Assn., A.C.H.&B. Sur. No. 91. Drlg. sh.&L. 4,094 ft.

Old Ocean—Brazoria County

Harrison & Abercrombie No. 2 Armstrong, Polly & Chance Sur. R.U.
Harrison & Abercrombie No. 1 Land and Barnes, C. Breen Sur. R.U.
Harrison & Abercrombie No. 1 Smith, C. Breen Sur. 9⅝-in. csg. 7,016 ft.; drlg. sh. 9,530 ft.

Sandy Point—Brazoria County

H. J. DeArman No. 1 Edmundson, D. Talley Sur. Drlg. sh. 4,503 ft.
H. J. DeArman No. 3 Fite, D. Talley Sur. Loc.
Stanolind O. & G. Co. No. 2 Fite, D. Talley Sur. R.U.

West Columbia—Brazoria County

Texas Co. No. 1 Gulf Oil Corp. fee, G. Tenille Sur. Drlg. brkn. L. 4,683 ft.
Texas Co. No. 87 Hogg, Tennille Lge. Drlg.sd.&bldrs. 411 ft.
Texas Co. No. 3 Phillips, G. Tennille Sur. Drlg. sdy. sh. 5,506 ft.

Calhoun—Heyser—Victoria County

Blanco Oil Co.-Buchanan No. 1 R. B. Morris, A. Sisneros Sur. Cg. sh. 5,400 ft.; no report.
Geo. Echols No. 1 W. H. Bennett, J. Galban Sur. Drlg. 2,830 ft.
George Echols No. 2 Lander, J. Galban Sur. T.D. 920 ft.
Gulf Oil Corp. No. 1 Schultz, J. E. Galban Sur. Cg. sh. 5,687 ft.
Gulf Oil Corp. No. 1 T. P. Traylor, J. E. Galban Sur. T.D. 5,580 ft.; 7-in. csg. 5,580 ft.; comp.; no gauge.
Humble O. & R. Co. No. 4 H. T. Marshall, A. Sisneros Sur. Drlg. 1,430 ft.
Humble O. & R. Co. No. 16-B P. H. Welder, A. Sisneros Sur. Cg. 5,400 ft.
Humble Oil-Plymouth Oil Co. No. 17-B Welder, A. Sisneros Sur. R.U.
Humble O. & R. Co. No. 19-A Welder, J. M. Rios Sur. Cg. sh. 5,412 ft.
Magnolia Pet. Co. No. 2 O. M. Lander, J. E. Galban Sur. Cg. 5,712 ft.
Magnolia Pet. Co. No. 4 Lander, J. Galban Sur. R.U.
Normandie Oil Co. No. 7 J. G. Cook, A. Sisneros Sur. Cg. 5,700 ft.
Portilla Drlg. Co. No. 9-C P. H. Welder, J. M. Rios Sur. T.D. 5,481 ft.; 5-in. csg. 5,485 ft.; I.P. 194 B.P.D.; ¼-in. ck.
Portilla Drlg. Co. No. 16-C P. H. Welder, A. Sisneros Sur. R.U.
Sinclair Prairie Oil Co. No. 4 W. H. Bennett, A. Sisneros Sur. Drlg. sh. 4,937 ft.
Sun Oil Co. No. 2 W. N. Coffey, J. Galban Sur. T.D. 5,794 ft.; I.P. 7½ B.P.H.; 9/64-in. ck.

Anahuac—Chambers County

Humble O. & R. Co. No. 11 Broussard, sec. 59, H.&T.C. Sur. T.D. 7,085 ft.; 5½-in. csg. 7,062 ft.; perf. csg. 7,056-67 ft.; abd.
Humble O. & R. Co. No. 14 Johnson, sec. 47, H.&T.C. Sur. 5½-in. csg. 7,118 ft.; T.D. 7,125 ft.; tstg.
Humble O. & R. Co. No. 29 Middleton, sec. 58. Drlg. 4,312 ft.
Humble O. & R. Co. No. 10 Zappe, sec. 51, H.&T.C. Sur. 9⅝-in. csg. 1,023 ft.; T.D. 6,586 ft.; cutting and pulling stuck D.S.

Cotton Lake—Chambers County

Humble O. & R. Co. No. 1 Casey, S. Barrow Sur. R.U.; (cor.).
Joe Ludin et al No. 1 Lawrence, Solomon Barrow Sur. 10¾-in. csg. 541 ft.; drlg. sdy. sh. 4,649 ft.
Texas Crusader Oil Co. No. 9 Kilgore, J. Townsend Sur. T.D. 1,175 ft.; W.O.C.

Seabreeze—Chambers County

Sun Oil Co. No. 3 Acorn, H.T.&B. Sur. 103. 13⅜-in. csg. 1,393 ft.; T.D. 8,494 ft.; cmtd. 9⅝-in. csg. on bttm.
Sun Oil Co. No. 1 Jackson, Yarbo Sur. T.D. 8,830 ft.; 5-in. csg. 8,805 ft.; drld. plug.

Turtle Bay—Chambers County

Stanolind O. & G. Co. No. 1 Silva, S. Burney Sur. 10¾-in. csg. 1,188 ft.; T.D. 6,600 ft.; 7-in. csg. 6,584 ft.; I.P. 610 B.P.D.; ¼-in. ck.
Stanolind O. & G. Co. No. 3 Silva, S. Burney Sur. R.U.

Orchard—Fort Bend County

Gulf Oil Corp. No. 53 Moore, J. Frazier Sur. Drlg. sh. 5,217 ft.; no report.
Gulf Oil Corp. No. 55 J. M. Moore, J. Frazier Sur. R.U.

Dickinson—Galveston County

Atlantic Ref. Co. No. 2 Anderson, W. G Banks Sur. 10¾-in. csg. 1,901 ft.; T.D. 8,140 ft.; 7-in. csg. 8,140 ft.; perf. 8,126-35 ft.; I.P. 502 B.P.D.; ¼-in. ck.
Atlantic Ref. Co. No. 4 Sealy Hutchins, P. G. Merritt Sur. Spd.
Frank Bennett No. 3 Way, P. G. Merritt Sur. R.U.
Bennett-Kenyon Oil Co. No. 2 B. Schroeder, W. G. Banks Sur. T.D. 8,143 ft.; 6⅝-in. csg. 8,110 ft.; comp. for dist. well.
Coast Pet. Co. No. 8 Stewart, W. K. Wilson Sur. R.U.
Humble O. & R. Co. No. 4-A Maco Stewart, W. K. Wilson Sur. T.D. 8,940 ft.; run screen.
Ken-Ben Oil Co. No. 5 Stewart, W. K. Wilson Sur. T.D. 8,790 ft.; 6⅝-in. csg. 8,790 ft.; I.P. 682 B.P.D.; ¼-in. ck.
Pure Oil Co. No. 2-A Sealy Hutchins, P. G. Merritt Sur. Spd.
Pure Oil Co. No. 3-B J. W. Shelor, W. G. Banks Sur. 10¾-in. csg. 1,833 ft.; T.D. 8,125 ft.; I.P. 207 B.P.D.; ¼-in. ck.
Stanolind O. & G. Co. No. 3 Damiani, W. K. Wilson Sur. T.D. 8,472 ft.; P.B.; T.D. 8,156 ft.; P.B. and sdtrkd.; drlg. sh. 8,615 ft.
Turman Oil Co. No. 3 Stewart, W. K. Wilson Sur. T.D. 8,941 ft.; 7-in. csg. 8,941 ft.; perf. 8,918-28 ft.; I.P. 936 B.P.D.; ¼-in. ck.

High Island—Galveston County

Stanolind O. & G. Co. No. 10 B.&O., M. Dunman Sur. 10¾-in. csg. 1,315 ft.; drlg. wtr. sd. 5,742 ft.
Stanolind O. & G. Co. No. 63 Cade, M. Dunman Sur. 10¾-in. csg. 1,311 ft.; drlg. sd.&L. 2,526 ft.
Stanolind O. & G. Co. No. 1 C. E. Smith, M. Dunman Sur. T.D. 6,399 ft.; 7-in. csg. 5,180 ft.; flwd. 112 bbls. in 24 hrs. by heads.

Hitchcock—Galveston County

N. W. Hunter No. 1 Stewart Title Guaranty Co., J. D. Moore Sur. Spd.
Merit Oil Co. No. 1 Stewart, J. B. Moore Sur. 10¾-in. csg. 1,075 ft.

Silsbee—Hardin County

Republic Prod. Co.-Houston Oil Co. No. 22 Brooks, G. W. Brooks Sur. T.D. 6,920 ft.; 7-in. csg. 6,915 ft.; showed S.W.; P.B. 6,903 ft.; perf. 6,910-13 ft.; tstg.
Republic Prod. Co.-Houston Oil Co. No. 23, G. W. Brooks Sur. Drlg. sh.&L. 5,737 ft.
Republic Prod. Co.-Houston Oil Co. No. 24 Brooks, G. W. Brooks Sur. R.U.

Friendswood—Harris County

Humble O. & R. Co. No. 2 Beamer, T. Choate Sur. T.D. 6,135 ft.; S.W. sd.; P.B. 6,100 ft.; 5½-in. csg. 6,032 ft.
V. H. Borsodi No. 1 Berlowitz, Blk. 3, T. Choate Sur. T.D. 6,117 ft.; perf. csg. 6,106-14 ft.; flwd. 190 B.P.D. on pot. test.
Humble O. & R. Co. No. 1 Kiesling, T. Choate Sur. R.U.

Fairbanks—Harris County

Amerada Pet. Corp. No. 1 F. A. Carpenter, F. Fry Sur. No. 267. T.D. 6,830 ft.; oil sd.; 7-in. csg. 6,830 ft.; perf. 6,823-26 ft.; I.P. 426 B.P.D.; ¼-in. ck.
Hamill and Smith No. 1 Dopsaluf, W.C. R.R., Blk. 1, sec. 4. T.D. 7,065 ft.; abd.

Humble—Harris County

John Deering No. 1 Wm. Lee, E. Rhule Sur., 5,000-ft. test. T.D. 5,440 ft.; fsg.

Mykawa—Harris County

H. C. Cockburn and Hargrove No. 1 Minnetex, Wm. Lovett Sur. Drlg. sh. 4,512 ft.

South Houston—Harris County

Stanolind O. & G. Co. No. 2 H. L. Bennett et al, Unit 13, H.T.&B. Sur. No. 6. T.D. 4,068 ft.; 5¾-in. csg. 4,051 ft.; P.B. 3,900 ft.; P.B. 1,561 ft.

Tomball—Harris County

Humble O. & R. Co. No. 2 Kleb, J. House Sur. Drlg. sh. 2,596 ft.
Humble O. & R. Co.-Magnolia Pet. Co. No. 1-C Kobs, J. H. Edwards Sur. Abd. 5,569 ft.
Humble O. & R. Co. No. 1 R. Riesenberg, J. Pruitt Sur. Drlg. sh. 2,537 ft.
Humble O. & R. Co. No. 1 J. M. Walsh, J. Pruitt Sur. T.D. 5,568 ft.; 5½-in. csg. 5,563 ft.; I.P. 524 B.P.D.; ¼-in. ck.
Mabee Drlg. Co. No. 3 W. Baker, J. House Sur. T.D. 5,589 ft.; W.O.C.
Shell Pet. Corp. No. 1 Alsobrook, J. Pruitt Sur. Drlg. 3,930 ft.
Texas Co. No. 4 Sam Lewis, J. Pruitt Sur. T.D. 5,552 ft.; P.B. 2,850 ft.; drlg. sh.& L. 3,572 ft.

Amelia—Jefferson County

Humble O. & R. Co. No. 9 T. H. Crook, C. Williams Sur. Drlg. sh. 3,612 ft.
Humble O. & R. Co. No. 10 Crook, C. Williams Sur. R.U.
Humble O. & R. Co. No. 5 Fitzgerald, C. Williams Sur. Loc.
Humble O. & R. Co. No. 1 S. L. Guinn, C. Williams Sur. R.U.
Humble O. & R. Co. No. 12 Guinn, C. Williams Sur. Drk.
Humble O. & R. Co. No. 11 J. H. Phelan, C. Williams Sur. Drlg. 6,775 ft.
Humble O. & R. Co. No. 12 Phelan, C. Williams Sur. Drk.
Humble O. & R. Co. No. 2-C Pinchback, C. Williams Sur. R.U.
Glenn H. McCarthy No. 3-B Longe, H. Williams Sur. R.U.
Stanolind O. & G. Co. No. 6 McCormick, H. Williams Sur. 10¾-in. 1,176 ft.; T.D. 5,882 ft.; run 7-in. csg.; I.P. 557 B.P. D.; ¼-in. ck.
Stanolind O. & G. Co. No. 7 Sargl, H. Williams Sur. T.D. 6,435 ft.; 7-in. csg. 6,016 ft.; perf. csg. 5,980-84 ft.; P.B. 5,961 ft.; tstg.
Sun Oil Co. No. 2 Gailey, A. Houston Sur. T.D. 5,902 ft.; P.B. 5,894 ft.; sdtrkd.; lost core bbl.; fsg.

Big Hill—Jefferson County

Stanolind O. & G. Co. No. 2 May Fitzhugh, Wm. McFadden Sur. T.D. 4,047 ft.; 10¾-in. csg. 4,040 ft.; drlg. sh. 4,782 ft.
Stanolind O. & G. Co. No. 4-A Pipkin, T.&N.O. Sur. Drlg. sdy. sh. 4,750 ft.

Fannett—Jefferson County

Gulf Oil Corp. No. 1 Junker-Spencer, W. H. Smith Sur. Drlg. L. 5,729 ft.

LaBelle—Jefferson County

Sun Oil Co. No. 1 John Ward, 933 ft. S of No. 2 Broussard, Wm. Burton Sur 18⅝-in. csg. 109 ft.; 9⅝-in. csg. 8,538 ft.; 7-in. csg. 9,951 ft.; T.D. 10,147 ft.; cmtd. off bttm.; drld. cmt. to 10,060 ft.; run 2½-in. tbg. to test.

Nome—Jefferson County

Shell Pet. Corp. No. 4-A Texas Public Service Co., W. H. Aldridge Sur. R.U. as relief well; drlg. 135 ft.
Sun Oil Co. No. 2 Tindall, A. Horton Sur. Drlg. sh. 4,687 ft.
Sun Oil Co. No. 7 Long, Blair Sur. 10¾-in. csg. 1,068 ft.; drlg. sh. 5,685 ft.

North Cheek—Jefferson County

Magnolia Pet. Co. No. 2 Phelan, S. Stevens Sur. T.D. 8,682 ft.; 7-in. csg. 8,660 ft.; I.P. 690 B.P.D.; ¼-in. ck.; T.P. 1,850 lbs.; C.P. 2,030 lbs.

Cleveland—Liberty County

Gulf Oil Corp. No. 1 Neville, J. Pleasants Sur. T.D. 6,050 ft.; abd.

Hankamer—Liberty County

Gulf Oil Co. No. 25 E. W. Boyt, Amos Allen Sur. Drlg. sh. 6,837 ft.; no report.

Hardin—Liberty County

Jack Frazier No. 1-A Lynott & Buffam, J. Robeson Sur. 10¾-in. csg. 1,078 ft.; T.D. 7,792 ft.; P.B. 6,000 ft.; to sdtrk.
Shell Pet. Corp. No. 1 Cochran, H. B Johnson Sur. T.D. 7,616 ft.; 5-in. csg. 7,603 ft.; W.O.C.
Strake Pet. Co. No. 1 W. T. Finley, A. B. Hardin Sur. 10¾-in. csg. 1,200 ft.; drlg. sh. 4,937 ft.
Woodley Pet. Co. No. 3-B McMurty, H. B. Johnson Sur. Drlg. sh. 3,537 ft.

Hull—Liberty County

Houston Prod. Co. No. 3 J. C. Baldwin, J. Devore Sur. Drlg. 2,112 ft.
Texas Co. No. 8 Barrow fee, J. Devore Sur. Drlg. sd. 1,111 ft.

South Call—Liberty County

Houston Oil Co.-Republic Prod. Co. No. 2 Peavy-Moore Lbr. Co., sec. 42, H.&T.C. Sur. R.U.

Bay City—Matagorda County

Hamman Expl. Co. No. 1 H. E. Thompson, Hall Sur. Core sd.&sh. 8,110 ft.

Buckeye—Matagorda County

United North & South Dev. Co., B. Cotton Sur. R.U.
United North & South Development Co No. 1 G.B.M., Cotton Lge. T.D. 8,667 ft.; 7-in. csg. 8,667 ft.; perf. csg. 7,850-80 ft.; swbg.

Markham—Matagorda County

Harrison & Abercrombie No. 1-B Kountze, H. Parker Sur. Drlg. sh. 1,250 ft.

Palacios—Matagorda County

Atlantic-McCarthy No. 3 Foley Ld. Co., L. Goodwin Sur. Drk.
Atlantic-McCarthy No. 2 Palacios State Bank, L. Goodwin Sur. Drlg. sh.&L. 4,837 ft.
Glenn McCarthy No. 2 Foley, L. Goodwin Sur. T.D. 8,590 ft.; perf. 8,470-8,510 ft.
Glenn McCarthy No. 1 W. M. Rohls, sec 10, L. Goodwin Sur. T.D. 8,843 ft.; stuck D.S. fsg.
Sun Oil Co. No. 1 Bay Shore Farms, Lewis Goodwin Sur. Core sh. 9,600 ft.

Orange—Orange County

Tillery & Ryan No. 1 Chesson, Wm. Dyson Sur. 10¾-in. csg. 1,180 ft.; S.D. 1,600 ft.; R.U. heavy rig.

Port Neches—Orange County

Texas Co. No. 6 W. H. Starks, W. E. Hall Sur. R.U.

Livingston—Polk County

Gem Oil Co. No. 5 Kavanaugh, A. Viesca Sur. R.U.

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With the Bailer Bottom installed the MILLER is quickly changed to a Bailer giving you a combination of either Bailer or a Sand Pump in one tool.

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● STAR BOTTOM
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● CHISEL BOTTOM
(In Pump)
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See Page 1186 COMPOSITE CATALOG

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Segno—Polk County

Gulf Oil Corp. No. 8 Wing, sec. 14, L&G N. Sur. T.D. 6,127 ft.; core ahead.
Rajo Oil Co. No. 2 Wing, I.&G.N. Sur., sec. 15. T.D. 5,264 ft.; oil sd.; run csg.

Spurger—Tyler County

Republic-Houston Oil Co. No. 5 Hurd fee. N. Hurd Lge. Drlg. sdy. sh. 6,242 ft.

Keeran—Victoria County

Gulf Oil Corp. No. 12 G. R. Keeran Est. Spd.
Union Oil Co. No. 7 Keeran, M. DeLeon Sur. R.U.

Placedo—Victoria County

Westgate Oil Co. et al No. 7 Mikeska, S. A.&M.G. Sur., Lot 74. Drlg. sh. 3,937 ft.

Tellener—Victoria County

Gulf Oil Corp. No. 1 Mahon and Buhler, W. C. Carroll Sur. Drlg. sdy. sh. 4,912 ft.

Clay Creek—Washington County

Sun Oil Co. No. 7 Droeger, J. F. Perry Sur. Drlg. sh. 4,512 ft.

Five Corners—Wharton County

Texas Co. No. 9-B Pierce, J. Caldwell Sur. 10¾-in. csg. 1,133 ft.; T.D. 5,555 ft.; 5-in. csg. 5,534 ft.; I.P. 29 B.P.D.; 4/64-in. ck.

Louise—Wharton County

Pure Oil Co. No. 5 Lancaster, Morris & Cummings Sur. T.D. 921 ft.

Magnet—Wharton County

Atlantic Ref. Co. No. 4-B H. C. Cockburn, Smith and McKenzie Sur. 10¾-in. csg. 1,363 ft.; T.D. 5,542 ft.; perf. 5,532-35 ft.; I.P. 99 B.P.D.; ⅛-in. ck.
Humble O. & R. Co. No. 2 Cockburn, Smith & McKenzie Sur. T.D. 5,543 ft.; 7-in. csg. 5,534 ft.; perf. csg. 5,525-30 ft. flwd. by heads; P.B. to 5,512 ft.
Peyton Bros. No. 1 Gish, Lot 2, Blk. 84, M.L.T. Co. Subd., Smith & McKenzie Sur. 10¾-in. csg. 1,112 ft.; T.D. 5,529 ft.; 7-in. csg. 5,529 ft.; pulling screen and lnr.; drld. to 5,537 ft.; rng. screen to test.
Texas Crusader Oil Co. No. 2 H. C. Cockburn, Smith & McKenzie Sur. 10¾-in. csg. 1,155 ft.; drlg. sh. 5,437 ft.

Pickett Ridge—Wharton County

Texas-Crusader Oil Co. No. 2 J. F. Kubella et al, G. C. Gifford Sur. 10¾-in. csg. 1,118 ft.; drlg. sh. 4,712 ft.

Withers—Wharton County

Texas Co. No. 36-C Pierce Est., Wm. Pettus Sur. T.D. 5,553 ft.; 7-in. csg. 5,547 ft.; swbg.
Texas Co. No. 38-C Pierce, J. Caldwell Sur. Drlg. sh.&L. 2,070 ft.
Texas Co. No. 2 A. C. Thompson, Wm. Pettus Sur. T.D. 5,548 ft.; 7-in. csg. 5,542 ft.; W.O.C.

GULF COAST WILDCATS

Chambers County

Merit Oil Co. No. 1 T. and M. Wright, C. Smith Sur. 10¾-in. csg. 1,302 ft.; T.D. 6,456 ft.; 10-min. D.S.T. 6,441-56 ft. showed 25 lbs. press.; 210 ft. of oil and 1,160 ft. of S.W.; cg. sd. with oil odor 6,610 ft.

Fort Bend County

Research, Inc., No. 1 Moore, S. Kennedy Sur. T.D. 7,177 ft.; abd.
Windward Oil Co. No. 1 P. W. Sims, sec. 1, H.&T.C. Sur. 10¾-in. csg. 995 ft.; cg. sd. 4,928 ft.

Galveston County

R. R. Gray et al No. 1 Eidman, Anthony Hatch Sur. R.U.

Hardin County

Humble O. & R. Co. No. 1 Shone, S. R. Fisher Sur. Drlg. sh. 2,431 ft.

Harris County

Medford and Burke No. 1 W. A. and O. C. Pruitt, Gilbert Brooks Sur. Drlg. sh. 1,230 ft.

Jefferson County

Shell Pet. Corp. No. 1 W. P. McFaddin, S. A. Pace Sur. No. 2. Bldg. road.

Liberty County

Humble O. & R. Co. No. 2 Sabine Tram, Malinda Whittington Sur. (Devers area). Drlg. sh. 7,782 ft.

Matagorda County

Continental Oil Co. No. 2 Hawkins Est., D. McCarty Sur. Drlg. sh. 8,967 ft.

Newton County

Houston Oil Co.-Republic Prod. Co. No. 1 Peavy-Moore, sec. 42, H.&T.C. Sur. Rec. 180 ft. P.L.O.; 540 ft. of oily mud on D.S.T. 6,775-6,927 ft.; P.B. 6,987 ft.; 7-in. csg. 6,987 ft.; perf. csg. 6,908-18 ft. with 20 holes; I.P. 126 bbls. of fluid per day less 5% B.S. and S.W.

Refugio County

Hogan Oil Co. No. 1 Kelley, M. & A. Roache Sur. Drlg. sh. 2,310 ft.

San Jacinto County

J. G. Mayo et al No. 1 Gibbs Bros., L. E. Mrequez Sur. T.D. 1,842 ft.; abd.

Tyler County

Thompson Drlg. Co. and J. C. Bonham, Emily Smith Sur. Drlg. sh. 1,162 ft.

Victoria County

Wallace Sollores et al No. 1 Etta Terrell, J. M. Galban Sur. Abd. 5,614 ft.
Stanolind O. & G. Co. No. 1 Henderson & Pickering, E. Benavides Sur. Drlg. sh. 5,800 ft.

Trinity County

Gossage-Green and Thompson No. 1 R. E. Thompson, J. A. Hickey Sur. Drk.

Washington County

K. D. Harrison and C. E. Starr No. 1 Charles and Wm. Ellerman, Wm. Bridges Lge. 13-in. csg. 290 ft.

Walker County

G. C. Dixon No. 1 Morgan, J. Ford Sur. Drk.
W. B. Gossage et al No. 1 Carey Ld. & Dev. Co., D. McDonald Sur. S.D. 2,220 ft.

Wharton County

Buch & Holt No. 1 Kaener, F. C. Reynolds Sur. 10¾-in. csg. 620 ft.; drlg. sh.&L. 3,315 ft.

S. W. TEXAS WILDCATS

Atascosa County

Brown & Bell No. 1 Atkins, 920-ac. tr., Sur. 3. Drlg. 4,077 ft.
L. W. Steiren No. 1 Crawford, 4 mi. W of Anchorage. Drlg. 1,187 ft.

Bastrop County

J. W. Bibb No. 1 Lentz, F. Wilkenson Sur. Drlg. sh. 916 ft.
Hantho-Nelson, Inc., No. 1 Litton, 71-ac. tr., Cedar Ck. Community. Top Edw. 2,515½ ft.; T.D. 2,135 ft.; P.B. 2,138 ft.; comp.; 256 B.P.D. on pmp.
Hantho-Nelson No. 2 Litton, 660 ft. W of No. 1, 75-ac. tr., Cedar Ck. Community. M.I.M.
Harvey & Henderson No. 1 Erhard, 175-ac. tr., Knight & White Surs. Drlg. 2,816 ft.
Marts & Beavens No. 1 Lackey, Joshua Gray Sur. Set surf. csg.; W.O.C.
Texas Northern Oil Co. No. 1 Barton, J. Rogers Sur. S.D. 2,927 ft.

Bee County

Dougherty No. 3 Hicks, Blk. 39, Uranga Gr. Drlg. 1,583 ft.

Bell County

W. H. Vernor No. 1 McQueen, 9 mi. S of Belton. Drlg. 2,009 ft.

Brooks County

Standard Oil Co. of Texas No. 2 Mestina, Lse. 2. T.D. 2,404½ ft.; perf. csg.

Caldwell County

B. C. Armstrong No. 1 Bell, S. Seal Sur. Drld. plugs 2,465 ft.; stdg. with 1,100 ft. fluid in hole.
C. O. Burgin No. 1 Mebane, F. B. Lee Sur. Drlg. 715 ft.
Chiquita Oil Co. No. 3 Moses, Hinds Sur. Drlg. 214 ft.
Lanning & Coffield No. 1 Trammell, 150 ft. N line, 750 ft. E line lse., Guadalupe College Sur. To P.B.; S.D.
Carl Riddle No. 1 Moore, Benton Sur. Set surf. csg. 19 ft.; W.O.C.
L. H. Wilson No. 1 Wright, J. Roberts Sur. D.&A. 2,050 ft.

Comal County

J. R. Yates No. 2 Heidrich, Heidrich ranch. Drlg. 941 ft.

DeWitt County

Dirks Bros. No. 1 Clark, Santos Sur. Spd.

Dimmitt County

Teas & Maryland Corp. No. 1 McKnight, Blk. 13, sec. 23. S.D.; repairs 2,009 ft.
H. F. Wilcox No. 3 Light ranch, 330 ft. N and W lines, sec. 113, I.&G.N.R.R. Sur., Blk. A. D.&A. 4,780 ft.
H. F. Wilcox O. & G. Co. No. 4 Light ranch, Blk. 9, sec. 97. Spd.

Duval County

Cox & Hamon No. 1 Calidornia-Peters, Sur. 32. Sd. 1,882-98 ft. and 1,838-42 ft.; S.O.; set csg. on upper sd.; to complete; W.O.C.
Hougen, Tr., No. 1 Patton, Sur. 148. D.&A. 3,004 ft.
Liberty Oil Co. No. 1 State, Sur. 216. T.D. 1,555 ft.; D.&A.
Magnolia Pet. Co. No. 16 Herbst, Sur. 65. Cg. sh. 1,935 ft.
Magnolia Pet. Co. No. 1 Ruiz, Sur. 190. R.U.
Navarro Oil Co. No. 1 Bennett, Blk. 33, Navarro Subd., Bennett ranch. D.&A. 4,521 ft.
J. J. O'Hern No. 1-F Benavides, Sur. 170. Drlg. 1,315 ft.
Penn-Palangana Oil Co. No. 2 Schallert, Sur. 239. Drlg. 2,813 ft.
H. J. Porter No. 1 Sevier, Palo Blanquito Gr. D.&A. 6,011 ft.
H. J. Porter et al No. 1 Montemayor, Las Anacua Gr. Sd. 5,215-23 ft.; O.O.; S.D. 5,305 ft.
Slaughter & Hugle No. 1 Hunter Est., 80-ac. tr., sec. 515. Drlg. 1,837 ft.
E. R. Thomas Est. No. 1 Pena, J. A. Garcia Sur. No. 8. Drlg. 4,356 ft.

Edwards County

Dan Auld No. 1 Henderson, sec. 46, Blk. "E." Drlg. wtr. well.
Amon G. Carter No. 1 Sweeten, SE¼, Blk. 2, Sur. 49. Drlg. 5,117 ft.

Frio County

Pagenkopf & Jamieson No. 1 Houston Est., 2,254-ac. tr., J. Figuerroa Sur. S.O. 2,610-03 ft.; set csg. to test 7-in. at 2,480 ft.; W.O.C.

Guadalupe County

Carver & Ellison No. 1 Rumpf, Burman Sur. M.I.M.
Elmag Oil Co. No. 1 Hardiman, Dikes Sur. Set surf. csg. W.O.C.
Mason Altgelt No. 1 Schubert, Esnaurizer Sur. T.D. 1,081 ft.; P.B. 890 ft.
Moon O. & G. Co. No. 1 Penshorn, Vincente Duran Sur. S.D. 704 ft.

Hidalgo County

Atlantic Ref. Co. No. 1 American Rio Grande. Drlg. 2,716 ft.
Y. & B. Oil Co. No. 1 Waite, Tr. 382, Los Jidos Gr. Washing down; T.D. 4,050 ft.; prep. to D.D.

Jim Hogg County

Henry M. Brown No. 1 Gutierrez, sec. 22, Sh. 4, El Peyote Gr. T.D. 3,541 ft.; D.&A.

Jim Wells County

H. M. Hill et al No. 1 Kuether, Lots 70 and 75, sec. 52, Haldeman Subd. R.U.; W.O. gas.
Magnolia Pet. Co. No. 7 Seeligson, 10,433 ac. tr., Los Jaboncillos Gr. Sd. S.G. 6,488-6,503 ft.; D.S.T. 6,488-6,503 ft.; rec. 60 ft. dist.; 1,000 lbs. W.P. 10-min.; took short core; well blew out and burned; S.I. and killed; cleaned hole; set protection csg. 6,770 ft.

Karnes County

DeGraff & Reele No. 1 Cochran, McConnel Lge. Drlg. 1,474 ft.
Herbert Aid No. 1 Union Life Ins. Co. Drlg. 715 ft.
Ivan Howard No. 1 Moczygemba, Erasmo Seguin 5, League Gr. Cg. 2,087 ft.

Kendall County

Landon & Peffley No. 1 Seidensticker, Sur. 257, Chorcon Gr. S.D. 530 ft.

Lee County

Jas. E. Pederson No. 1 Turner, Davis Hudson Sur. S.O.&G. 6,140-80 ft.; sdtrkd. at 4,600 ft. and drld. to 6,132 ft.; S.O.&G.; set csg. 6,021 ft.; acdzg. with 20-bbl. load; when opened well flwd. 20-bbl. head and went dead; swbd. oil and wtr.; acd.; to put on pump.

Live Oak County

Chiquita Oil Co. No. 1-A Taylor-Lark, Scrugham Sur. Spd.
L. Glasscock No. 1 Bonham, Simmons Subd., Blk. 45. Spd.
Chas. Hanna et al No. 1 Wedding, 200-ac. tr., Haughy Sur. S.D. 1,900 ft.
Loma Oil Co. No. 1 McCurdy, W. J. Turner Sur. No. 71. D.&A. 1,211 ft.
Marzo Oil Co. No. 1 Alexander, Ayres Sur. R.U.
Petroleum Producers Co. No. 1 Alexander, Nichols ranch, Ayers Sur. Drlg. sd. 1,063 ft.
Ranco Oil Corp. No. 1 fee, 660 ft. NW and SW lines, Pointevent Sur. 3. M.I.M.
F. D. Salter No. 3 fee, Osborn Sur. Drlg. 617 ft.
Standard Oil Co. of Texas No. 1 Nicholson, Thompson Sur. Set csg. 442 ft.; W.O.C.
Unit Pet. Co. No. 1 Atkinson, Ayres Sur. S.D. 1,350 ft.

Maverick County

Rio Dev. Co. No. 4 State Bank & Trust Co., Sur. 2. Drlg. sh. 620 ft.
Wellington Oil Co. No. 1 Chittam, 330 ft. N line, 2,310 ft. W line, sec. 129, Blk. 7. T.D. 3,287 ft.; flwd. intermittently at rate of 10 B.P.H. and went dead; acdz.

McMullen County

Adams & Lefevre No. 1 Selman, sec. 58, Govt. Wells sd. 2,512-16 ft. and 2,536-40 ft.; D.S.T. 2,509-40 ft.; rec. 1,860 ft. mud cut with oil and brackish wtr; light blow gas; D.&A. 3,020 ft.
Alabama Minerals Corp. No. 1 Gordon, O.W.W.O.; T.D. 2,537 ft.; set csg. 1,960 ft.; to test O.S. in Chernosky sd.
Coyle & Bedwell No. 1 Two Rivers Rnch. Co., sec. 60. S.D. 10 ft.
Rowan & Nichols No. 1 Rhodes, NE¼ sec. 18, Seale & Morris Sur. D.&A. 2,606 ft.
C. C. Shumway No. 11 Shiner, sec. 6, Shumway Subd. Spd.
Pat Tinney No. 1 Rutherford, Blk. 17, Two Rivers Ranch Subd. S.D. cor. T.D. 730 ft.; fsg.

Medina County

R. S. Bolling No. 1 McMenemy, Sur. 33½. R.U.

Nueces County

Camp Prod. Co. No. 1-A Wardner, sec. 18, Stratton Subd. D.S.T. 6,476-82 ft.; rec. 40 ft. dist. in 4½ min.; W.P. 400 lbs.; perf. csg. 6,500-05 ft.; cig. in pits; T.D. 6,521 ft.
Sannix Oil Co. No. 1 Nesloney, 760-ac. tr., Casa Blanca Gr. Drlg. wtr. well.
Seaboard Oil Corp. No. 1 John M. Luby, 466 ft. S and W lines, Blk. 1, Sh. 2, Luby Subd. R.U.
Southern Minerals Corp. No. 2 King, Blk. 6, R. King Farm Lots. Drlg. 916 ft.

San Patricio County

Argo Oil Corp. No. 1 Soehnge, 159.66-ac. tr., Blk. 11, Schleicher & Joseph Subd., Delgado Gr. Drlg. 3,763 ft.
Danray Oil Co. No. 1 Davis, Tr. 5, Wm. Boyd Sur. Set csg. 7,117 ft.; perf. 7,080-90 ft. and 6,540-44 ft.; rec. S.W.
F. P. Schwab No. 1 Smith, Lot A-16, Cubage & Miller Subd., O'Connor ranch.

SPECIAL TRAIN TO CHICAGO via FRISCO-ALTON

Eighteenth Annual Meeting, Nov. 8-11
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Lv. Tulsa.....3:45 pm, Sunday, Nov. 7
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Lv. Chicago (Union Station) 5:00 pm, Thursday, Nov. 11
Ar. Tulsa.....9:00 am, Friday, Nov. 12

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The mid-afternoon departure permits of dinner with your family on Sunday... gives an entire evening for visiting with fellow delegates and members... then a good night's rest... breakfast on the train... and Chicago!

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D.S.T. 5,425-36 ft.; rec. 160 ft. oil mud and 900 ft. oily S.W. 9 min.; cg. 6,-657 ft.
Waterbury Oil Corp. No. 1 Davis, 107-ac. tr., G. Grober Sur. D.&A. 6,717 ft.

Starr County

Calderoni-James-Foliette No. 1 Rodriguez Blk. 6, Sh. 56. Porc. 80. Set 4½-in. csg. 1,483 ft.; T.D. 1,511 ft.; P.B. T.D. 1,756 ft.; S.D.; W.O.O.
Henshaw Bros. & Davis No. 1 Garcia, Tr. 40, Porc. 89. T.D. 2,835 ft.; perf.; abd.
Sun Oil Co. No. 1 Guerra, Jose Antonio Guadardo Sur., Porc. 111. Drlg. 1,-677 ft.
Transwestern Oil Co. and Davenport No. 3 Slick, sec. 527. Drlg. 5,787 ft.

Webb County

Adams & LeFevre No. 1 Garcia, Blk. 27, Hughes Subd., Sur. 592. Drlg. 2,473 ft.
French Oil Corp. No. 1 Benavides, Sur. 704. S.D. 712 ft.
French Oil Corp. No. 4 Garcia, Sur. 1121. D.&A. 2,627 ft.
Paul Meaders No. 1 Garcia, Sur. 338. Loc.
Randon Oil Co. No. 1 Palmer, Sur. 474. S.D. 1,660 ft.

Willacy County

La Sal Vieja Oil Corp. No. 1 Garcia Ld. & Cattle Co., Tr. 73. M.I.M.
Magnolia Pet. Co. No. 1 Armendiaz, Sh. 4, San Juan de Carricitos Sur. Drlg. 2,916 ft.

Williamson County

Thos. W. Davis, Jr. No. 1 Colman & Davis, Boggus Sur. Drlg. sh. 554 ft.

Wilson County

Diamond Halff Oil Co. No. 1 Houston, 200-ac. tr., Reynolds Sur. Drlg. 2,417 ft.
Arnold, Dink, Stone & Haley No. 1 Black, 1,102.3-ac. tr., hrs. of Juan and Simon Arocha Sur. Drlg. sh. 37 ft.
Pat Higgins No. 1 Higgins, Rodriguez Sur. 237. Set surf. csg. 30 ft.; W.O.C.

Zapata County

Eugene Mays No. 1 Flores, Blk. 198, Doty Subd., Charco Redondo Gr. Drlg. 2,-331 ft.

Zavalla County

Diamond Halff Oil Co. No. 1 Houston, 200-ac. tr., J. Reynolds Sur. R.U.
G. Hyson No. 1 Byrd, 5,000-ac. tr., sec. 130. Loc.

S. W. TEXAS PROVEN

McCampbell—Aransas-San Patricio Counties

Atlantic Ref. Co. No. 7-C McCampbell, Lot 1, Blk. 41. Set 7-in. csg. 7,138 ft.; comp.; 93 B.P.D. on ¼-in. ck.; T.P. 1,-775 lbs.; C.P. 2,325 lbs.
Atlantic Ref. Co. No. 1-F McCampbell, Blk. 28. Set csg. at T.D. 7,130 ft.; washing in.
Atlantic Ref. Co. No. 8-C McCampbell, Lot 1, Blk. 42. Drlg. 3,615 ft.
Atlantic Ref. Co. No. 4-B Murray, Lot 9, Blk. 12. Sd. 7,092-96 ft.; set csg. 7,096 ft.; W.O.C.
Atlantic Ref. Co. No. 1-B Porterfield, Lot 8, Blk. 10. Dist. sd. 7,010-15 ft.; set csg. 7,121 ft., T.D.; W.O.C.
Atlantic Ref. Co. No. 2-B Porterfield, Lot 11, Blk. 8. T.D. 7,135 ft.; prep. run S.J.
Atlantic Ref. Co. No. 3-B Porterfield, Lot 8, Blk. 11. Rng. scrn. and lnr.; T.D. 7,135 ft.
Atlantic Ref. Co. No. 4-B Porterfield, Blk. 10, Lot 10. Drlg. 680 ft.
Atlantic Ref. Co. No. 1-C Porterfield, Lot 8, Blk. 12. Cg. 7,819 ft.
Buckingham Oil Co. and Tom Graham No. 2-D Porterfield, Lot 11, Blk. 9. Drlg. 1,916 ft.
Buckingham Oil Co. No. 4-B McCampbell, Lot 16, Blk. 40. O.W.W.O.; old T.D. 7,430 ft.; R.U. to D.D.
Buckingham Oil Co. No. 5-A McCampbell, Lot 4, Blk. 39. O. sd. 6,544-48 ft.; reperf. csg. 6,544-47 ft.; clg.
Buckingham Oil Co. No. 12-A McCampbell, Blk. 42. Perf. 7,095-7,119 ft.; S.W. & O.; pkgd. to reperf.
Buckingham Oil Co. No. 1-B McCampbell, Lots 13 and 14, Blk. 40. O.W.W.O.; old T.D. 6,557 ft.; sdtrkd. 6,351 ft.; drlg. 6,389 ft.
Buckingham Oil Co. No. 1-C McCampbell, 33.8-ac. tr., Blk. 27. T.D. 7,150 ft.; prep. rework.
Franston Oil Co. No. 1 Murray, Lot 7, Blk. 37. R.U.
Tom Graham No. 1 Edwards, Lot 16, Blk. 7. R.U.
Landreth Prod. Co. No. 6-A McCampbell, Lot 1, Blk. 40. Sd. 7,110-18 ft. and 7,120-26 ft.; set csg.; W.O.C.
Neill & Peterson No. 2-A McCampbell, Lot 1, Blk. 43. Drlg. 1,319 ft.
Peach Tree Oil Co. No. 2 Porterfield, Lots 15 and 16, Blk. 10. Sd. O.&G. 7,085-7,132 ft.; set csg.; perf. 7,125-30 ft.; comp.; 50 B.P.D. dist. on ⅛-in. ck.
Rutherford Oil Corp. No. 2 Scrivener, Lot 16, Blk. 11. T.D. 7,146 ft.; sd. 7,102-19 ft.; comp.; no ga.
Shasta Oil Co. No. 3 Vaughn, Lot 11, Blk. 10. Set 7-in. csg. 7,129 ft.; W.O.C.

Carroll—Bastrop County

Nelson Puett No. 7 Carroll Est., 535.75-ac. tr., A. Mays Sur. Drlg. Serp. 2,184 ft.

Plummer—Bee County

W. C. McBride No. 2-B Plummer, Chessman Sur. R.U.

North Dale—Bastrop County

Marts & Beavens No. 1 Lackey, Gray Sur. Drlg. 1,214 ft.

West Tuleta—Bee County

Salt Dome Oil Co. No. 3 Tuleta Merchantile Co., SW¼, sec. 10, Wragley Subd., Uranga Gr. Jtg.; T.D. 3,079 ft.; flwg. 5 B.P.D. oil and slugs mud; W.O.O.

Gas Ridge—Bexar County

W. H. Kennon No. 1 Oliver. T.D. 3,461 ft.; pulled csg. and ran el. sur.

Alta Mesa—Brooks County

Standard Oil Co. of Texas No. 1 Mestina, Lse. No. 1. O.W.W.O.; old T.D. 4,277 ft.; retstg. 4,266-77 ft.
Standard of Texas No. 5 Mestina, Lease No. 1. 7-in. csg. set 3,220 ft.; T.D. 5,505 ft.; perf. 4,513-20 ft.; plugged and re perf. 4,520-24 ft.; W.I.
Standard Oil Co. of Tex. No. 9 Mestina Lse. No. 1, La Mestina and Gonzalena Sur. T.D. 2,463 ft.; set 7-in. csg. 2,450 ft.; W.O.C.

Alta Verde—Brooks County

Bishop & Woods No. 1 Maupin, Sur. 311 P.B. 1,114 ft.; perf. csg. 1,094-1,108 ft.; tstg.
Dick Young No. 5 Singer, Blk. 12, Sur. 312 (W.O.). T.D. 1,810 ft.; S.D.

Branyon—Caldwell County

B. & T. Pet. Co. No. 1 Magee, J. A. Neill Sur. Completing; T.D. 2,236 ft.; R.U. to pmp.
B. & T. Pet. Co. No. 2 Magee, J. A. Neill Sur. Drlg. 1,451 ft.
Johnson Drlg. Co. No. 1 Lockhart State Bank, J. Roe Sur. Drlg. 1,983 ft.
Lincoln Pet. Co. No. 8 Branyon, J. R. Miller Sur. T.D. 2,340 ft.; comp.; 12 B.P.D. on pmp.
Mar-Jon Oil Co. No. 3 Fulps, J. Neill Sur. Drlg. sh. 542 ft.
Martell Pet. Co. No 2. Clark, J. R. Miller Sur. Drlg. 1,815 ft.
Martell Pet. Co. No. 1 Young, J. R. Miller Sur. T.D. 2,342 ft.; D.&A.
Martell Pet. Co. No. 2 Young, J. R. Miller Sur. Drlg. 516 ft.
Potter P. L. Co. No. 3 McCrory, J. Neill Sur. Drlg. 513 ft.
Second National Oil Co. No. 1 White. R.U. to pmp. 2,203 ft.
Taylor Ref. Co. No. 6-B Branyon, D. Cooper Sur. R.U.
Universal O. & G. Co. No. 2 Calliham, Miller Sur. Drlg. 2,411 ft.
Wm. Vaughy No. 7 Flowers, J. A. Neill Sur. T.D. 1,897 ft.; set 7-in. csg. 1,895 ft.; W.O.C.

Buchanan—Caldwell County

Edwill Oil Co. No. 4 Browne, Chas. M. Cannon Sur. R.U.
McAlester Fuel Oil Co. No. 2 Miears, Chas. M. Cannon Sur. Set csg. 1,942 ft.; W. O.C.
McAlester Fuel Oil Co. No. 3 Miears, Cannon Sur. Set surf. csg. 20 ft.; W. O.C.
Ralph Ogden No. 1 Dinges, Damon Sur. Cg. 1,831 ft.
Potter P. L. Co. No. 5 Medlin, Cannon Sur. R.U.
L. G. Priest No. 1 Chambless, Goodman Sur. Comp.; 20 B.P.D.; T.D. 2,652 ft.

Dale—Caldwell County

Ogden & Reed No. 2 Lackey, S. Damon Sur. T.D. 2,705 ft.; P.B. 2,300 ft.; comp. 114 B.P.D. on pmp.

Dunlap—Caldwell County

Chas. Schreiner No. 1 Moody, Seal Sur. S.D.; T.D. 2,313 ft.

Joliet—Caldwell County

Frank Williams No. 1 Smith, Berry Sur. Cg. 2,513 ft.

Larremore—Caldwell County

Spokane O. & G. Co. and Okla. O. & G. Co. No. 3 Starkey, C. Crenshaw Sur. Drlg. 886 ft.

Salt Flat—Caldwell County

Pummel & Brady No. 1 Jackson, S. Morris Sur. Drlg. 1,137 ft.
Ellmag Oil Co. No. 1 Pope, J. P. Rains Sur. M.I.M.
Hantho-Nelson, Inc., No. 1 New, James Hinds Sur. Drlg. 316 ft.

Benavides—Duval County

Argo Oil Co. No. 8 Carillo, sec. 9, Sweden Farm Lots. Drlg. 4,207 ft.
Arkansas Fuel Oil Co. No. 6 Rossi, Santos Flores Sur. Drlg. 4,420 ft.
Benedum & Trees Oil Co. No. 7 Puig, San Andres Gr. Drlg. 3,517 ft.
Benedum & Trees Oil Co. No. 8 Puig, 750-ac. tr., San Andres Gr. Drlg. 277 ft.
M. Benzaquin No. 1 Flores, sec. 9, Sweden Farm Lots. T.D., lig. 4,805 ft.; S.D.O.
Bridwell Oil Co. No. 3 Anciro, 152-ac. tr., Lot 19, Sweden Farm Lots. Set 7-in. csg. 4,768 ft.; W.O.C.
Frank Gravis Oil Co. No. 4-A Puig, 100-ac. tr., San Andres Gr. T.D. 4,822 ft.; drlg. plugs.
Gravis & Doran No. 6 Puig, San Andres Gr. No. 24. Drlg. 2,057 ft.
Hiawatha Oil Co. No. 3 Parr, San Andres Gr. Set csg. 4,735 ft.; comp.; 176.68 B.P.D. on 5/32-in. ck.; sd. 4,725-35 ft.
Navarro Oil Co. No. 1-A Owens, 100-ac. tr., Blk. 19. Drlg. 4,325 ft.
Nordan & Morris No. 2 West, sec. 10, Sweden Farm Lots. R.U.
Reynosa Oil Co. No. 4 Wilson, 80-ac. tr., sec. 9, Sweden Farm Lots. Drlg. 4,-337 ft.
Reynosa Oil Co. No. 5 Wilson, 80-ac. tr., sec. 9, Sweden Farm Lots. Drlg. 3,-556 ft.
Russ Pet. Co. No. 6 Farias, Blk. 9, Sweden Farm Lots. Comp.; 246 B.P.D. on ¼-in. ck.; T.D. 4,805 ft.
Russ Pet. Co. No. 7 Farias, Flores Gr. No. 25. Drlg. 4,022 ft.
Russ Pet. Co. No. 1 Rossi, sec. 10, Sweden Farm Lots. Drlg. 3,783 ft.
Standard Oil Co. of Kans. No. 6 Parr, 80-ac. tr., San Andres Gr. Comp.; 238 B. P.D. on ½-in. ck.
Standard Oil Co. of Kansas No. 9 Rossi, Santos Flores Gr. Comp.; no gauge.
Standard Oil Co. of Kans. No. 10 Rossi, Santos Flores Gr. M.I.M.
Standard Oil Co. of Kansas No. 3 Walstad, 100-ac. tr., Blk. 9, Sweden Farm Lots. Set csg. 4,793 ft.; comp.; no gauge.
Sun Oil Co. No. 1 Barton Est., 1,056.1-ac. tr., Surs. 425, 6 and 24, San Andres Gr. Cg. 4,863 ft.

Charamousca—Duval County

N. V. Duncan No. 15 Worden-Draught, Sur. 151. Cg. 1,516 ft.

Colmena—Duval County

Conservative Oil Co. No. 2 D.C.R.C., Sur. 47. Drlg. 1,020 ft.

Driscoll—Duval County

Continental Oil Co. No. 18-A Sevier, Sur. 450. Set csg. 3,351 ft.; sd. 3,320-49 ft.; T.D. 3,374 ft.; perf. 55 B.P.D., 10% S.W.; perf. 3,345-55 ft.

Government Wells—Duval County

Southwest Drlg. Co. No. 6 Luptack, sec. 41. Sd. 2,258-78 ft.; comp.; gasser; small amt. oil.

Hoffman—Duval County

Cox & Hamon No. 22 Green, Sur. 118. Drlg. 1,997 ft.
Cox & Hamon No. 23 Green, Sur. 118. Sd. 2,700-13 ft.; comp.; 105 B.P.D.; jtg.
Cox & Hamon No. 9 Robles, Sur. 68. Sd. 2,680-83 ft.; comp.; 30 B.P.D.; jtg.
Cox & Hamon No. 10 Robles, sec. 68. Sd. 2,691-99 ft.; set csg. 2,691 ft.; W. O.C.; T.D. 2,699 ft.
Gulf Stream Oil Co. No. 5-B Hoffman, Sur. 118. R.U.

Kohler—Duval County

Bunn Bros. & Coates No. 2-A Peters, Gibson Sur. 397. Spd.
Bunn Bros. & Coates No. 6-B Peters, Sur. 29. Sd. 1,835-47 ft.; set csg. 1,834 ft.; comp.; 21.7 B.P.D.; T.D. 1,847 ft.
Cox & Hamon No. 3 Gruy, Sur. 157. Set csg. 1,845 ft.; comp.; 20 B.P.D.; jtg.; sd. 1,841-45 ft.

Labbe—Duval County

Magnolia Pet. Co. No. 3 Labbe ranch, sec. 2. T.D. 2,861 ft.; D.&A.

Lundell—Duval County

Govt. Wells Oil Co. No. 7 Lundell. sec. 140. T.D. 1,537 ft.; comp.; 240 B.P.D.
Govt. Wells Oil Co. No. 8 Lundell, Sur. 140. Spdg.

Piedra Lumbre—Duval County

Magnolia Pet. Co. No. 7 D.C.R.C., Sur. 203. Sd. 1,983-96 ft.; T.D. 1,996 ft.; set 7-in. csg. 1,983 ft.; comp.; 117 B.P.D.
Magnolia Pet. Co. No. 22 D.C.R.C., Sur. 100. Drlg. 1,598 ft.

Sarnosa—Duval County

Sarnosa Oil Corp. No. 18 Well, Sur. 130. Drlg. 1,316 ft.
Tarver & Putnam No. 1 Ruiz, sec. 217. D.&A. 3,010 ft.

Seven Sisters—Duval County

Pan American Prod. Co. No. 8-A Welder, Sur. 381. Drlg. 257 ft.
S. and D. Daube No. 36 Campos, Sur. 224. T.D. 2,734 ft.; comp.; 120 B.P.D. on pmp.
S. and D. Daube No. 39 Campos, Sur. 224. Set 7-in. csg. 2,669 ft.; T.D. 2,712 ft.; comp.; 168 B.P.D. on pmp.
S. & D. Daube No. 38 Campos, Sur. 224. T.D. 2,715 ft.; comp.; 96 B.P.D. on pmp.
S. and D. Daube No. 40 Campos, Sur. 224. Sd. 2,693½-98½ ft.; comp.; 144 B.P.D. on pmp.
S. & D. Daube No. 37 Campos, Sur. 224. T.D. 2,730½ ft.; comp.; 136 B.P.D. on pmp.
S. and D. Daube No. 41 Campos, Sur. 224. Drlg. 2,015 ft.
Sun Oil Co. No. 3 Rodriguez, Sur. 222. T.D. 2,828 ft.; swbg.; R.U. to pmp.

Sweden—Duval County

Hiawatha Oil Co. No. 1 Herberger, Sur. 14, Ball Subd., Agua Poquita Gr. Tstg. sd. 5,849-60 ft.; comp.; 5 B.P.H. on ⅛-in. ck.

Thomas-Lockhart—Duval County

Lockhart Bros. No. 3 Parr, Sur. 277. T.D. 4,698 ft.; swbg.
Taylor Pet. Co. No. 1 Parr, 40-ac. tr., Sur. 279. Cg. 3,607 ft.

Pearsall—Frio County

Amerada Pet. Corp. No. 8 Halff & Oppenheimer, S. A. Ditch Sur. 1,104 (W.O.). Set 7-in. protective csg. 10,341 ft.; drlg. 10,717 ft.

Darst Creek Extn.—Guadalupe County

Bavou River Oil Co. No. 1 State, J. K. Davis Sur. T.D. 2,390 ft.; comp.; no ga.
Kenedy & Crowley No. 1 Anderson, J. R. Robinson Sur. S.D.; W.O. material 2,-605 ft.
Riddle Oil Co. No. 2 Williams, DeWitt Sur. No. 13. Set csg. 2,378 ft.; completing.
Texas Co. No. 8-A Knoblock, Joel Robinson Sur. Set csg. 2,500 ft.; comp.; 350 B.P.D. (est.) on pmp.; T.D. 2,506 ft.
Trio Oil Co. No. 1 Willie, Darst Sur. Comp.; 300 B.P.D.; pmp.; T.D. 2,642 ft.
Trio Oil Co. No. 2 Willie, Darst Sur. Drlg. 377 ft.

Luling—Guadalupe-Caldwell Counties

Magnolia Pet. Co. No. 9 Branyon, Reaville Sur. Drlg. 776 ft.
Millican & Norman No. 2 Lampkin, J. Henry Sur. Set csg. 1,715 ft.; W.O.C.
Muckelroy & Schame No. 1 King, N. Reaville Sur. M.I.M.
Potter P. L. Co. No. 1 Cartwright, J. Henry Sur. T.D. 1,991 ft.; T.C. 1,781 ft.; 5½-in. csg. 1,770 ft.; swbd. S.G.
Spokane O. & G. Co. No. 1 Hibbits, J. Henry Sur. S.D. 410 ft.
Rio Bravo Oil Co. No. 17-L Merriweather, John Henry Sur. Spd.
Taylor Ref. Co. No. 2 Harris, H. Cottle Sur. R.U.

Staples—Guadalupe County

W. W. Lincoln No. 2 Gabriel, Geo. Allen Sur. Spd.

Zoboroski—Guadalupe County

Forest Dev. Co. No. 2 Hoffman, G. DeWitt Sur. Set csg. 2,197 ft.; T.D. 2,214 ft.; stdg.
Forest Dev. Co. No. 4 M. Hoffman, DeWitt Sur. Comp.; 23 B.P.D.; pmp.; T.D. 2,494 ft.
Forest Dev. Corp. No. 6 Hoffman, DeWitt Sur. Set csg. 2,284 ft.; T.D. 2,288 ft.; stdg.
Skivereen Oil Co. No. 1 State of Texas, Guad. River bed, 50 ft. S of No. 1. Tstg.; T.D. 2,240 ft.; pmpd. dry; S.D.

LaBlanca—Hidalgo County

Dee Davenport No. 1 Hidalgo Wtr. & Imp. Dist., Lot 16, Engleman Subd., Smith Sur. 262. Drlg. 6,283 ft.
Dee Davenport No. 2 Swallow, Clyde Fennis Ld. Co. Sur. Drlg. 7,714 ft.
Gulf States Oil Co. No. 2-A Delta Orchards, Lot 3, Sur. 94. R.U.
Gulf States Oil Co. No. 2 Delta Orchards, Lot 3, Blk. 94, Engleman, Jr. Sur. Resubd. T.D. 2,711 ft.; tried to blow out in shallow gas sd.; pmpd. cmt. in hole to 1,642 ft.; D.&A.

Alworth—Jim Hogg County

French Oil Corp. No. 6 Garcia, Sur. 269. T.D. 1,063 ft.; flwg. 1 B.P.D.; sds. 1,-034-36 ft. and 1,038-49 ft.

Sandia—Jim Wells County

Smith & O'Bannon No. 1 Allen, Lot 1, Blk. "B," Bode Subd. D.&A. 5,525 ft.

West Premont—Jim Wells County

Homer Presnall No. 1 Holmes, Lots 59 and 70, sec. 76. R.U.

North Pettus—Karnes County

Magnolia Pet. Co. No. 18 Porter Sur. 23. Sd. 3,692-3,703 ft.; comp.; 18 B.P.D. on pmp.

South Burnell—Karnes County

Dirks Bros. No. 5 Ruhman, Johnson Sur. Comp.; no ga.; T.D. 3,622 ft.
Luling O. & G. Co. No. 5 Boyce, Samson Still Sur. No. 8. Set 5½-in. csg. 3,605 ft.; T.D. 3,624 ft.; W.O.C.
Luling O. & G. Co. No. 6 Boyce, Still Sur. No. 8. R.U.
Pettus Oil Ref. Co. No. 4-A McKinney, Ballard Sur. Set csg. 3,622 ft.; T.D. 3,654 ft.; W.O.C.

Fort Merrill—Live Oak County

Mills Bennett Prod. Co. No. 2 Watson & Shipp, Pablo Salinas Sur. D.&A.; cor. T.D. 4,805 ft.

Calliham—McMullen County

J. V. Fleming No. 4 Lark, Scrugham Sur. Set 5½-in. csg. 1,041 ft.; comp.; 12 B. P.D.; T.D. 1,348 ft.
J. V. Fleming No. 5 Lark, Scrugham Sur. T.D. 1,031 ft.; set 5½-in. csg. 1,022 ft.; comp.; 5 B.P.D. heading.

Ezzell—McMullen County

Edwin M. Jones No. 20 Ezzell, NE¼, NE¼, sec. 23. Sd. 1,500-06½ ft.; set csg. 1,527 ft.; W.O.C.
Edwin M. Jones No. 4-B Ezzell, NE¼, SE¼, sec. 20. Sd. 1,530-37 ft.; set csg. 1,559 ft.; W.O.C.
R. P. Holland No. 2 Matkin, Gloreck Sur., Lot 2433, Simmons Sur. S.D. 750 ft.
E. M. Jones No. 21 Ezzell, sec. 23. Drlg. 1,215 ft.
E. M. Jones No. 3-B Ezzell, sec. 20. Drlg. 97 ft.
E. M. Jones No. 4-B Ezzell, sec. 20. Sd. 1,515-16 ft.; W.O.C.

South Calliham—McMullen County

Bill Howard No. 9 Claunch, Hely Sur. R.U.

Loma Alta—McMullen County

J. T. Lanier No. 1 Hagist, SE¼, N½, Sur. 481. S.D. 2,513 ft.

Agua Dulce—Nueces County

Heep Oil Corp. No. 1 Purl, 440-ac. tr., Subd. No. 2. Sd. 5,724-29 ft.; brkn. S.W.; tstg.
Texon Drlg. Co. No. 2 Elliff, 3,054-ac. tr., Longorio Sur. T.D. 6,668 ft.; sd. 6,637-68 ft.; perf. 6,659-64 ft.; gas; plugged to reperf.
Union Prod. Co. No. 3-A Rivers, sec. 9, Peters Subd. Washing; T.D. 8,540 ft.; set csg. 5,729 ft.; comp.; gas and dist.; perf. 5,655-70 ft. and 5,680-90 ft.; no ga.; S.I.
Union Prod. Co. No. 1 Simmons, 1,000-ac. tr., Lopez de Juan Sur. R.U.
Union Prod. Co. No. 1 Schroeder, sec. 87, Paul Subd., Driscoll ranch. Drlg. 7,613 ft.

Clara Driscoll—Nueces County

O. W. Killam No. 3 Ellick, 86-ac. tr., Sur. 109. Set 7-in. csg. 3,934 ft.; perf. 3,905 10 ft.; recmtd.; reperf. 3,908-12 ft.; rng. tbg.

S. Clara Driscoll—Nueces County

Sun Oil Co. No. 1 Flynn, sec. 110, Paul

Subd., Driscoll ranch. Drlg. 3,669 ft.

Flour Bluff—Nueces County

Humble O. & R. Co. et al No. 1 Brett, Lot 1, Blk. 48. Set csg. 6,665 ft.; comp.; 141 B.P.D. on ¼-in. ck.; T.D. 6,668 ft.
Humble O. & R. Co. et al No. 4 Cordz, Blk. 45. Drlg. sh. 5,738 ft.
Humble O. & R. Co. et al No. 5 Cordz, Lot 16, Blk. 45. T.D. 6,663 ft.; comp.; 138 B.P.D.
Humble O. & R. Co. et al No. 1 Downey. T.D. 6,666 ft.; W.O.C.
Humble O. & R. Co. et al No. 6 Gulden, Blk. 47. R.U.
Humble O. & R. Co. et al No. 5 Robertdeau, Lot 4, Blk. 49. T.D. 6,663 ft.; W.O.C.
Humble O. & R. Co. et al No. 2 Swan, Lot 2, Blk. 54. Set csg. 6,672 ft.; comp.; 96 B.P.D. on ¼-in. ck.
Humble O. & R. Co. et al No. 2-B Thompson, Lot 8, Blk. 55. Sd. 5½-in. csg. 6,662 ft.; comp.; 132.41 B.P.D. on ⅛-in. ck.

London—Nueces County

Wellington Oil Co. and Seaboard Oil Corp. No. 1-B Lehman, NW¼, SE¼, sec. 25. T.D. 5,000 ft.; S.D.; W.O.

Luby—Nueces County

Seaboard Oil Corp. No. 3 Luby, Blk. 3, Sh. 2. Sd. 5,040-57 ft.; set 7-in. csg. 5,057 ft.; W.O.C.
Seaboard Oil Corp. No. 4 Luby, Blk. 4, Sh. 2, Luby Subd. M.I.M.
Stanolind O. & G. Co. No. 2 McCann, 565.3-ac. tr. Perf. 5,050-60½ ft.; comp.; 178 B.P.D. on 5/32-in. ck.; 7-in. csg. 5,055 ft.
Stanolind O. & G. Co. No. 3 McCann, 500-ac. tr. R.U.

Saxet Heights—Nueces County

Wm. Brady No. 2 Whalen, Villareal Sur Oil sd. 4,043-56 ft.; set 5½-in. csg. 4,065 ft.; W.O.C.
W. H. Harrison No. 3 McConnell, Blk. 5, Oak Park Addn. Set surf. csg. 307 ft.; stdg.
W. H. Harrison No. 2 Whelan, Villareal Sur. D.&A. 4,068 ft.
Phillips Pet. Co. No. 8 Corpus Christi Golf & Country Club, Villareal Sur. Perf. 4,051-56 ft.; comp.; 35 B.P.D.

Saxet—Nueces County

Bryant & Howell No. 4 Plachy, Sur. 25 Sd. 4,161-75 ft.; set 5½-in. csg. 4,250 ft.; W.O.C.
Donico Prod. Co. No. 6 Donigan, 80-ac. tr. Drlg. 2,134 ft.
Donico Prod. Co. No. 8 Donigan, 80-ac. tr., sec. 7, Rge. 6. Sd. 4,800-70 ft.; comp.; 100 B.P.D. on ¼-in. ck.
J. E. Freeman No. 1 Scott, Sur. 500. Cg. 5,742 ft.
Greta Oil Corp. No. 2 Bliss, 25-ac. tr., Sur 406. Fsg.; blew out; rng. wild through 10-in. surf. csg. set at 1,520 ft.; T.D. 6,956 ft.
Greta Oil Co. No. 5 Humphries, Stevens Sur. T.D. 6,790 ft.; set csg. 4,132 ft.; plugged perf. 4,055-75 ft.; reperf. 4,070-75 ft.
Greta Oil Corp. No. 1 Isensee, Sur. 404. Set surf. csg.; W.O.C.
Houston Oil Co. No. 5-A Harrell, Sheppard Farm Lots. T.D. 4,886 ft.; rmg. to test.
Houston Oil Co. No. 8-A Harrell, Lot 24, Sheppard Farm Lots. T.D. 4,539 ft.; set csg.; comp.; 143 B.P.D.
Houston Oil Co. No. 9-A Harrell, Lot 24, Sheppard Farm Lots. Set surf. csg. 202 ft.; W.O.C.
Houston Oil Co. No. 4 Hunter, 75-ac. tr., sec. 8, Rge. 5. Cg. 4,399 ft.
Houston Oil Co. No. 28 Morgan, 493.63-ac. tr., sec. 7, Rge. 6. Drlg. sh.&L. 2,371 ft.
H. H. Howell No. 6 Hutchins, 80-ac. tr., Sur. 416. Set csg. 6,975 ft.; perf. 6,900-18 ft.; washing.
H. H. Howell No. 8 Hutchins, 80-ac. tr., Sur. 416. Drlg. 5,756 ft.
Kepley Prod. Co. No. 7 Donigan, 100-ac. tr., sec. 7, Rge. 5. Sd. 4,544-46 ft.; comp.; 131.04 B.P.D. on ⅛-in. ck.; perf. 4,550-52 ft.
Maryland Corp. and Renwar Oil Corp. No. 2 Stillwell-Sagarino, Sur. 500. Drlg. 6,225 ft.
Maryland Corp. and Renwar Oil Co. No. 2-B Morgan, Sur. 415. T.D. 6,238 ft.; sd. 6,111-20 ft.; cutting stuck D.S.
Morgan & Chapman Minerals Corp. No. 9 Morgan-Clark, NE¼, Sur. 405. T.D. 6,945 ft.; sdtrkd. 4,622 ft.; set csg. 6,816 ft.; drlg. plugs.
Pan American Prod. Co. No. 5 Solar Sevier, Sur. 311. Set surf. csg. 1,075 ft.; W.O.C.
Phillips Pet. Co. No. 7 Morgan, S½, sec. 405. Cg. 6,717 ft.
Republic Nat. Gas Co. No. 21 Dunn, Blk. 37, Sheppard Farm Lots. Set 7-in. csg 6,960 ft.; W.O.C.
Richardson Pet. Co. No. 3 Harrell, Blk. 33, Sheppard Farm Lots. Drlg. 6,067 ft
Richardson Pet. Co. No. 7 Hoelscher, Blk. 22, Russell Farm Lots. Sd. 4,415-21 ft.; set 7-in. csg. 4,421 ft.; W.O.C.
Richardson Pet. Co. No. 7 Perkins-Lagasse, Blk. 25, Sheppard Farm Lots. Set csg. 1,300 ft.; W.O.C.
Richardson Pet. Co. No. 13 Quiros, Sur. 311. Drlg. 5,873 ft.
Richardson Pet. Co. No. 11 Sedwick, 184-ac. tr., Dunn Sur. 312. Cg. 6,151 ft.
Southern Minerals Corp. No. 21 Bliss, Sur. 404. Blew out while attempting to set 1,114 ft.; surf. csg.; abd.
Southern Minerals Corp. No. 9 Ocker, 205-ac. tr. Set 7-in. csg. 4,863 ft.; sd. 4,862-71 ft.; jetting in pits.
Texon Drlg. Co. No. 1 Janosek, 32.74-ac. tr., Sur. 25. Set 7-in. csg. 3,871 ft.; T.D. 4,227 ft.; comp.; dry gasser; perf. 3,823-28 ft.

Sullivan—Nueces County

Lockhart et al No. 1 O. Purl, Lot 2, sec. 7, Ross Peters Subd. No. 2. Sd. 7,032-52 ft.; P.B. and sdtrkd.; drlg. 7,162 ft.

Midway—San Patricio County

Phillips Pet. Co. No. 4 Ivey, sec. "K," Pauls Subd. Set surf. csg.; W.O.C. 1,100 ft.
Sun Oil Co. No. 2 Coggin, sec. 82. Drlg. 1,021 ft.

Plymouth—San Patricio County

Heep Oil Corp. No. 8-F Welder, sec. 46. Cg. 6,749 ft.
Plymouth Oil Co. No. 82-C Welder, sec. 70. Sd. 5,628-39 ft.; comp.; no ga.
Plymouth Oil Co. No. 83-C Welder, sec. 70. Drlg. sh. 5,311 ft.
Sun Oil Co. No. 3 Rounditree, sec. 34, Lot 4. Perf. 5,636-37 ft.; pmpd. 30 bbls. oil, 50 bbls. S.W.; sanded up; reworking.

Taft Field—San Patricio County

Greta Oil Corp. No. 1 Pullin, Blk. 1, Lot 4. Drlg. 3,242 ft.
Humble O. & R. Co. No. 28 Mayo, 32-ac. tr., Ottman Sur. Set csg. 3,980 ft.; comp.; 10.59 B.P.H. on ⅞-in. ck.; set 5½-in. csg. 3,969 ft.
Humble O. & R. Co. No. 30 Mayo, Ottman Sur. Drlg. sh. 3,917 ft.

Barbacoas—Starr County

K. E. Merren No. 1-A S.C.C.C., Blk. 34 Lambeth Subd., Porc. 89. Set csg. at T.D. 5,640 ft.; sd. 5,470-91 ft.; C.O.; perf. 5,390-5,417 ft. and 5,417-24 ft.; flwg. dist. and S.W.; C.I.C.P. 1,800 lbs.

Ricaby—Starr County

Conan Wood No. 1 Wardner Est., Porc. 84. R.U.
Dean Bros. No. 1 Valadez, Porc. 84. Sd. 1,863-72 ft.; set 5½-in. csg. 1,872 ft.; T.D. 1,873 ft.; perf. 1,868-72 ft.; 1,200 ft. fluid mostly oil in hole; to put on pmp.
Dodd, Tr., No. 5 Wood Est., Porc. 84. Set csg. 1,772 ft.; W.O.C.
J. W. Edwards No. 1 Vela, Porc. 84. Cg. 1,916 ft.
McAlester & Espenlaub No. 1 Wood, Porc. 84. Drlg. 763 ft.
Sun Oil Co. No. 5 Wardner, Vela Sur., Porc. 84. Set surf. csg.; W.O.C.

Rio Grande City—Starr County

Roy Gaines No. 1 Goodrich & Wood, Porc. 81, Tr. 5, Blk. 8. R.U.

Manda—Travis County

J. H. Robertson No. 4 Christian, J. P. Kemp Sur. No. 27. Serp. 643-730 ft.; 7-in. csg. at 636 ft.; comp.; 35 B.P.D. on pmp.; T.D. 730 ft.

Carolina-Texas—Webb County

E. J. Purl et al No. 2 Garza, Sur. 48. Sd. 2,100-07 ft.; S.O.; drlg. plugs in csg. set at 2,100 ft.

Cole—Webb County

O. W. Killam No. 56 Benavides, Blk. 17, sec. 8. Comp.; 60 B.P.D.; open tbg.; T.D. 3,412 ft.
O. W. Killam No. 57 Benavides, Blk. 17, sec. 8. T.D. 2,593 ft.; S.W.; P.B. 2,437 ft.; W.O.C.
Magnolia Pet. Co. No. 3 Valdez, Valdez Sur., Blk. 8. T.D. 3,808 ft.; rng. S.J.

Killam—Webb County

French Oil Co. No. 1 Perez, Blk. 3, Sur. 1007. Oil sd. 1,981-82½ ft.; comp.; 50 B.P.D.; ½-in. ck.
O. W. Killam No. 1 Garcia-Villareal, E½, SE¼, Sur. 337. Cg. 1,979 ft.
O. W. Killam No. 3 Garcia-Villareal, Sur. 1009. Drlg. 467 ft.
O. W. Killam No. 23 Garcia, Sur. 786. Cg. 1,973 ft.
O. W. Killam No. 24 Garcia, Sur. 786. Comp.; 80 B.P.D. on pmp.; sd. 1,984½-92 ft.
Rowan & Hope No. 3 Laurel Bros., Sur. 1006. Drlg. 67 ft.

Lopez—Webb-Duval Counties

C. H. Andrus No. 1 Billings, Sur. 10. Cg. 2,217 ft.

Oilton—Webb County

Bridwell Oil Co. No. 4 Martin, Sur. 2167. Comp.; 215 B.P.D. pmpg.; sd. 1,886½-89 ft. and 1,906-14 ft.
Gypsy Oil Co. No. 11 Martin, Laurel Sur. 458. Sd. 1,894-99 ft.; set 5½-in. csg. 1,887 ft.; comp.; 150 B.P.D.
Gypsy Oil Co. No. 12 Martin, Sur. 458. Drlg. 453 ft.
Hamil & Smith No. 7 Martin, sec. 2167. Sd. 1,888-96 ft.; comp.; 160 B.P.D.; ⅝-in. ck.
Hamil & Smith No. 10 Martin, sec. 2167. Comp.; no ga.; sd. 1,889-97 ft.
Mills Bennett Prod. Co. No. 1 Martin, sec. 458. Set csg. 1,913 ft.; D.D. 1,975 ft.
Morgan & Kirkwood No. 1 Juarez, Blk. 23, Sur. 1005. Sd. 1,935-42 ft.; set 7-in. csg. 1,935 ft.
Porter & Blanchard No. 1 Laurel, Sur. 1006. Set csg. 1,930 ft.; sd. 1,929-30 ft. comp.; 20 B.P.D. and gas.

LaSal Vieja—Willacy County

Shell Pet. Corp. No. 2 Yturria, Sh. 64, Carricitos Gr. Drlg. 6,214 ft.

Escobas—Zapata County

Dulup Oil Co. No. 28 Trevino, 326-ac. tr., Sh. 25. Drlg. 721 ft.
B. W. Roscoe No. 15 Bustimante, Sh. 33, Fansler Part. Comp.; 20 B.P.D.; sd. 1,273-79 ft.; T.D. 1,287½ ft.
B. W. Roscoe No. 17 Bustimante, Sh. 33, Fansler Part. Cg. 1,294 ft.
Russell Leasing Co. No. 4 Bustimante, Blk. 13, Sh. 10. Sd. 1,131-41 ft.; comp.; T.D. 1,201 ft.; 20 B.P.D. on pump.
Texas Co. No. 107 Jennings, Cerrito Blanco Gr. Comp.; est. 40 B.P.D. on pmp.; T.D. 1,261 ft.
Texas Co. No. 108 Jennings, Cerrito Blanco Gr. Drlg. sdy. sh. 615 ft.

NORTH TEXAS WILDCATS

Archer County

Burk Roy. Co. No. 1 J. B. Miller, sec. 20, A.T.N.C.L. Sur. Drlg. 3,215 ft.
Hamon, Hanlon-Buchanan, Inc., et al No. 1 W. P. Ferguson, sec. 2, H.&G.N. Sur. 6⅝-in. 3,900 ft.; S.L. 3,967-90 ft.; W.O.C.

Baylor County

Golding & Cochran No. 1 Louis Hencirik, sec. 5, B.B.B.&C. Sur. Drlg. 1,420 ft.
Hampton et al No. 1 A. G. Cochrell, sec. 2,404, T.E.&L. Sur. Drlg. 1,385 ft.

Clay County

W. Gant No. 5 C. M. Worsham, D.L.&C.A. Sur. 1,073. Drlg. 3,805 ft.
Healdton O. & G. Co. No. 1 Wallace, Belcher Subd. Mov. in rotary; spudded with spudder.

Cooke County

W. O. Russell No. 1 J. W. Sherrill, Wm. Phelps Sur. A-821. Drlg. 1,300 ft.

Denton County

W. C. Curry et al No. 1 G. F. Owens, N. Rudder Sur. A-1060. Drlg. 620 ft.
Bruce Lee No. 1 Boyles, S. Ross Sur. A-112. Drlg. 1,580 ft.
Miller Bros. No. 1 D. H. Luster, F. Trevino Sur. A-121. S.D.O. 2,510 ft.
Scroggins et al No. 1 S. M. Freeman, Bradshaw Sur. A-104. S.D.O. 1,900 ft.

Foard County

O. P. Burnham No. 1 Ward, sec. 21, H.& T.C. Sur., Blk. 8. C.O. 2,275 ft.

Grayson County

Denver P. & R. No. 1 Cannon, A. Berry Sur. A-130. Drlg. 3,650 ft.

Montague County

J. W. Sorrell et al No. 1 J. E. Walthall, S. H. Smith Sur. A-662. S.D. 2,000 ft.
Ventex Investments, Ltd., No. 1 S. E. Bell, sec. 11, M.E.P.&P. Sur. Drlg. 3,710 ft.

Wichita County

W. B. Hamilton No. 1 Mrs. M. Parker, M. Ramsey Sur. A-471. Drlg. 1,013 ft.
Hammon Hanlon Buchanan, Inc., No. 1 A. F. Fassett, sec. 1, E.T.R.R. Sur. Drlg. 1,650 ft.
LeBus No. 1 J. F. Miller, W. R. Eaves Sur. A-447. Drlg. 3,650 ft.
W. B. Omohundro [illegible] First Natl. Co., sec. 28, W.V.F.L. Sur. 6⅝-in. 3,687 ft.; W.O.C.
Patterson et al No. 1 B. C. Ellis, J. Waldschmidt Sur. A-792. S.D.O. 930 ft.
Felix Payne No. 1 P. R. Pace, R. J. Scott Sur. A-253. Spudded.
E. J. Stump et al No. 1 J. and J. Waggoner, W. R. Eaves Sur. A-753. 7-in. cmtd. 3,806 ft.; W.O.C.
Clyde Texan Oil Fields Co. No. 1 A. W. Burnside, John M. Sharp Sur. A-262. Drlg. 3,410 ft.

Wilbarger County

Barry & Hayes No. 1 McGill, sec. 3, Blk. 9, H.&T.C. Sur. C.O. 2,850 ft.
King Oil Co. No. 1 R. L. Castleberry, sec. 68, H.&T.C. Sur., Blk. 14. Drlg. 1,800 ft.
W. Little No. 1 A. P. Morris, sec. 3, H.T. &C. Sur., Blk. 14. Spud. & S.D.

Wise County

W. D. Dilbeck No. 1 J. I. Wilkins, E. Stephens Sur. S.D. 600 ft.
Latex Oil Co. No. 1 C. R. Smith, J. Couch Sur. A-104. Showing gas 3,843-45 ft.; 6⅝-in. 3,943 ft.; S.S.O.&G. 3,952-95 ft.; shot 60 qts.; C.O. bridge.

Young County

F. W. Bennett No. 2 R. V. Tidwell, J. L. Blackwood Sur. A-1378. B.O.S. 3,249-3,360 ft.; T.D. 3,698 ft.; C.O.
T. D. Humphrey No. 1 S. R. Ragland T.D. Kuykendall Sur. Sd.&L. 3,773-97 ft.; C.O.
L. A. Long No. 1 F. A. Burnett, E.G. Rector Sur. No. A-239. 6⅝-in. 3,815 ft.; W.O.C.
Lupton & Long No. 1 W. I. Gilmore, J. Gilmore Sur. A-2135. Drlg. 4,100 ft.; H.F.W.
W-K Royalty Co. No. 1 J. A. Wright, J. N. Taylor Sur. A-1243. Drlg. 2,900 ft.

E. C. TEXAS WILDCATS

Angelina County

John Coates No. 1 J. L. Russell. Jose Morino Sur., E of Diboll. Drk.

Cherokee County

Merica Oil Co. No. 1 Cherokee Dev. Co., A. J. Acker Sur., 2 mi. E of Maydelle. Drk.
E. H. Moore, Inc., No. 1 Chronister Lbr. Co., 3 miles NE of wells. Tr. 71, Blk. 33, John Durst Gr. Spudded.

Falls County

McCleod et al No. 1 F. Bolton, J. R. Cockrill Sur., 4 mi. NW Rosebud. Drlg. 479 ft.

Fannin County

Stewart Drlg. Co. No. 1 N. Young, S. H. Hitchcock Sur., 1 mi. W of Randolph, W of Glazier & Trippe No. 1 Young. Drlg. 3,631 ft.

Freestone County

J. K. Hughes No. 1 Foster C. E. Gray Sur., 5 mi. SE of Kirvin. R.U.
C. E. Rossiter No. 1 J. P. Fulton in J. P. Fulton Sur., 2½ mi. E of Donie. S.D. 956 ft.

Gregg County

Humble O. & R. Co. & Gulf O. Corp. No. 1 E. Robertson, M. Mann Sur., 2½ mi. SW of Longview Trinity test. El. 272 ft. Drlg. 4,955 ft.

Henderson County

American Liberty Oil Co. et al No. 1 LaRue & Johnson, Blk. 11, P. Jackson Sur., 2 mi. W of LaRue. El. 464 ft.; top Georgetown 5,540 ft.; fsg. 6,762 ft.
S. Hunt et al No. 1 Dillard, H. Jeffries Sur., 16 mi. N of Trinidad. El. 361 ft.; top Woodbine 3,093 ft.; fsg. 3,525 ft.
Wm. McDougall No. 1 Trinity, F. & S. Land Co., Blk. 1, H.&T.C. Sur. Drk.
Tide Water Assoc. et al No. 2-C McElreath & Siggett, W. P. Wyche Sur. Top Glen Rose 6,282 ft.; coring 9,213 ft.

Hopkins County

V. A. Hughes No. 1 B. and T. Hardaway, Wm. A. Irwin Sur., 3 mi. E of Ridgeway. Pecan Gap 1,538 ft.; drlg. 1,600 ft.

Houston County

American Liberty No. 2 J. A. Bean, W. Burke Sur., 1 mi. N of Grapeland, approx. 2,200 ft. E of No. 1. Top sand 6,076 ft.; drlg. 6,100 ft.
Grin-Jackson No. 2 H. F. Moore, H. Master Sur., 2 mi. SE of Crockett. W.O.C. 105 ft.

Leon County

Kelly & Fox No. 1 Bryant, A. M. Coultarn Sur., 1 mi. E of Marquez. S.D.

Limestone County

C. L. Brown No. 27 N. B. Boyd, 2,337 ft. from S and 1,510 ft. from W of tr., R. B. Longbotham Sur., 3 mi. S of Wortham. Loc.
Pure Oil Co. No. 16-T Kendrick, P. Varella Sur., Mexia field. Drlg. 7,737 ft.
Stanolind O. & G. Co. No. 1 T. Norris, in Thresher Sur., 5 mi. N of Kosse: 6,500-ft. test. El. 528 ft.; top Georgetown 3,255 ft.; W.O.C. 3,310 ft.

Nacogdoches County

G. C. Collier and Corley No. 1-A A. T. Mast, 14 mi. SW of Nacogdoches, T. S. Lambert Sur., 750 ft. N of No. 1. R.U.

Navarro County

Mrs. Jane Robinson No. 1 Fortson Bros., Eli Smith Sur., 5 mi. NE Corsicana. Drlg. 100 ft.
T. Sharpe et al No. 1 E. B. McDowell, T. Jordan Sur., ½ mi. S of Bassets. Drlg. 2,836 ft.

Red River County

Cosby, Inc., No. 1 Hocker & Hughes, southern part of county. Top Woodbine 2,853 ft.; top Paluxy 3,770 ft.; drlg. 4,019 ft.

Rusk County

J. W. Shipman et al No. 1 Citizens Bank, J. J. Y'Barbo Sur., 4 mi. NE of Henderson. S.D. 4,500 ft.

Van Zandt County

P. E. Hill No. 1 J. L. Chitty, M. Neal Sur., 12 mi. S of Canton. S.D. 2,180 ft.

EAST TEXAS

(Border Counties)

Cass County

American Liberty Oil Co. No. 5 Maxie, John Collom Sur. 10⅝-in. 2,000 ft.; drlg. 3,800 ft.
Ark. La. Gas Co. No. 1 Nellon, Thomas Gillespie Sur. R.U.
Geo. Barham No. 1 Whitfield, R. Bennington Sur. R.U.
Bay Oil Corp. No. 3 Cobb, G. Crowder Sur. 9⅝-in. 2,167 ft.; T.D. 4,110 ft.
R. W. Norton No. 3 W. E. Starke. 13⅜-in. 250 ft.; 9⅝-in. 2,035 ft.; T.D. 4,405 ft.
United Prod. Co. No. 4 Allday, P. Evans Sur. Tstg.; T.D. 6,016 ft.
United Prod. Co. No. 4 Belote, H. Holbert Sur. Drlg. 5,028 ft.

Statement of the Ownership, Management, Etc., of THE OIL AND GAS JOURNAL

October 1, 1937

(This statement is published in compliance with the Act of August 24, 1912). Published weekly (Thursday) at Tulsa, Okla.

Publisher: The Petroleum Publishing Company, Tulsa, Okla.

Editor: C. O. Willson, Tulsa, Okla.

Managing Editor: W. T. Anderson, Tulsa, Okla.

Business Manager: S. H. Rourke, Tulsa, Okla.

Stockholders holding 1 per cent or more of total amount of stock: Helen B. Lauinger, Tulsa, Okla.; P. C. Lauinger, Tulsa, Okla.; Edward R. Boyle, Oil City, Pa.; Edward P. Boyle, Oil City, Pa.; Edmond C. Breene, Trustee for Edward R. Boyle, under the will of Jennie B. Egan, Deceased, Oil City, Pa.

Known bondholders, mortgagees and other security holders holding 1 per cent or more of the total amount of bonds, mortgages or other securities: None.

S. H. ROURKE,
Business Manager.

Sworn to and subscribed before me this 28th day of September, 1937.

H. R. BARNETT,
Notary Public.

My commission expires October 3, 1937.

United Prod. Co. No. 7 Bewley, H. Holbert Sur. Cg. 5,964 ft.
United Prod. Co. No. 1 fee, H. Holbert Sur. W.O. 6,070 ft.
United Prod. Co. No. 2 fee 575, B. Holms Sur. 7-in. 2,988 ft.; comp.; flw. 231 bbls. in 23 hrs.; T.D. 6,064 ft.
United Prod. Co. No. 1-A Starke, D. Gilliam Sur. Tstg. dry; S.D.; W.O.; T.D. 6,050 ft.

Harrison County

J. B. Bond et al No. 1 Bailey & Martin, Geo. Martin Sur. D.&A.; T.D. 6,518 ft.

Marion County—Rodessa

Arkansas-Louisiana Gas Co. No. 2 Emma Ford, A. D. S. Coy Sur. Drlg. 4,736 ft.
Arkansas-La. Gas Co. No. 1 J. P. Fant L. P. Cadenhead Sur. Acidized; T.D. 6,150 ft.; swbg. est. 25 B.P.D.
Ark.-La. Gas Co. No. 1 Wade Houston, A. D. S. Coy Sur. 10¾-in. 2,025 ft.; drlg. 4,916 ft.
Fohs Oil Co. No. 1 W. T. Neilon, R. Bennington Sur. Loc. moved to SE cor. 70-ac. Neilon tr.
Fohs Oil Co. No. 2 M. Reynolds, A. D. S. Coy Sur. Cg. 6,038 ft.
Holcomb & Thomasson No. 1 Gray-Taylor, A. D. S. Coy Sur. Drlg. 4,805 ft.
Mid-Continent Pet. Corp. No. 4 Sory, A. D. S. Coy Sur. 10¾-in. 2,003 ft.; T.D. 3,341 ft.
Hunter Co. No. 3 Fonda, A. D. S. Coy Sur. W.O.S.R. 6,143 ft.
Shell Pet. Corp. No. 1 L. Henderson, R. Bennington Sur., Lot 8. D.S.T.; 450 ft. oil; 7-in. 5,975 ft.; T.D. 6,013 ft.
Union Prod. Co. No. 5 Hutchinson, A. D. S. Coy Sur. R.U.
United Prod. Co. No. 2 Hutchinson, A. D. S. Coy Sur. Comp.; flw. 60 B.P.H.; T.D. 6,112 ft.
United Prod. Co. No. 3 Hutchinson, A. D. S. Coy Sur. Drlg. 4,060 ft.
United Prod. Co. No. 4 Hutchinson, A. D. S. Coy Sur. Drlg. 4,315 ft.

Panola County

Danciger O. & G. Co. No. 1 Tatum, A. Bissell Sur. Drlg. 6,265 ft.
Magnolia Pet. Co. No. 2 E. A. Hull, Thos Applewhite Sur. Drlg. 8,572 ft.

WEST TEXAS WILDCATS

Andrews County

American Liberty O. Co. No. 1 E. Cowden sec. 14, Blk. A-55, P.S.L. Sur. S.D. 5,002 ft.
M. J. Delaney No. 1 E. P. Moore, sec. 12 Blk. A-20, P.S.L. Sur. T.D. 4,579 ft.
M. S. Forgeron et al No. 1 Lockhart & Brown, C NE¼ sec. 20, Blk. A-41, P.S.L. Sur. S.D. 179 ft.
Gulf Oil Corp. No. 1 State, sec. 8, Blk. 14. T.D. 2,997 ft.; blew out; to kill gas.

Bailey County

Etz & Robinson No. 1 Enochs, Tract 66 League 182, Floyd Co. School Lands Sur. S.D. 1,970 ft.
J. O. Whittington No. 1 McKelvey. S.D.

Brewster County

F. C. Dodson No. 1 Texas American Synd. sec. 66, Blk. 10, G.H.&S.A. Sur. S.D. 6,001 ft.; straight reaming.
Storey No. 1 Wilson, sec. 3, Blk. 212, T.&St.L. Sur. S.D. 2,545 ft.

Cochran County

Texas Co. No. 1 Slaughter. Drlg. 4,950 ft.
P. N. Wiggins et al No. 1 Dean, NE cor. League 58, Martin Co. School Lands. T.D. 4,800 ft.; to set csg.
Pete Wiggins et al No. 1 C. Slaughter Dean, C Lab. 26, League 92 Linscomb Co. Sch. Ld. T.D. 5,020 ft.; to pump.

Concho County

Sam Murray No. 1 R. G. Armor, sec. 105, T.&N.O. Sur. Spudded and S.D.

Coke County

Barnett Pet. Co. No. 1 J. R. Mims, sec. 39, Blk. W, T.&P. Sur. Drlg. 776 ft.
H. E. Ogden et al No. 1 Rawlins, sec. 390, Blk. B-21. S.D. 515 ft.

Crane County

Gulf Oil Corp. No. 2 McKnight, sec. 9 Blk. B-21. T.D. 5,404 ft.; P.B. to 3,650 ft.; shot; 11 bbls. in 4 hrs.
Wilcox O. & G. Co. No. 1 McKnight, sec. 9, Blk. 46, Twp. 3s, G.M.M.B.&A. Sur. Drlg. 5,137 ft.

Crockett County

Moore Bros. No. 1 P. Perner, sec. 37, Blk. 2, I.&G.N. Sur. Drlg. 3,471 ft.
J. N. Simpson No. 1 Hoover, sec. 2, Blk. FF, G.C.&S.F. Sur. R.U.S.T.
Stewart & Cormas No. 1 Hoover, sec. 1, Blk. FF, B.B. Sur. S.D. 550 ft.

Culberson County

C. A. Jarrell et al No. 1 C. M. Caldwell, C of SW¼ sec. 15, Blk. 100, P.S.L. Sur. Loc.

Dawson County

R. Albaugh No. 1 D. Hogg, SE of SE sec. 17, Blk. 34, Twp. 4n, T.&P. Sur. R.U.S. T. 3,560 ft.
E. L. Wilson No. 1 Scanlon, Sec. 83, Blk M, E.L.R.R. Sur. S.D. 4,965 ft.; P.B. to 4,933 ft.; averaging 33 bbls. oil and 8½ bbls. water per day.

Dickens County

C. E. Litchfield No. 1 Harris, sec. 354 Blk. 1, H.&G.N. Sur. S.D. 1,600 ft.; no report.
J. F. Morrisey et al No. 1 C. L. Bird, 550 ft. S and 800 ft. W. sec. 290, Blk. 1, H.&G.N. Sur. S.D. 500 ft.

Edwards County

A. P. Carter No. 1 F. D. Sweeten, S&E sec. 48, Blk. 2, B&B Sur., 1¼ mi. E of Rock Springs. Fsg. 5,096 ft.

Ector County

Fuhrman Pet. Corp. No. 1 E. Cowden, sec. 41, Blk. 43, Twp. 2s, T.&P. Sur. Drlg. 4,386 ft.
Shasta Oil Co. No. 1 K. Sands sec. 32, Blk. 44, T.&P. Sur. Drlg. 4,420 ft.

El Paso County

Tri-State Oil Co. No. 1 Kinkle. Drlg. 3,100 ft.

Fisher County

I. J. Allen No. 1 H. S. Newman, Lot 49, Bastrop Co. Sch. Lds. M.I.M.
Bond Oil Corp. No. 1 N. Bertram, 1 mi. S of Sylvester. T.D. 908 ft.; crooked hole.
Consolidated Oil Co. et al No. 1 Florida. Drlg. 2,560 ft.

Gaines County

Amerada Pet. Corp. No. 1 Matthews, sec. 417, Blk. G, C.C.S.D.&R.G.N.G. Sur. T.D. 5,018 ft.; P.B. to 5,008 ft.
Continental Oil Co. No. 2 Jones, sec. 1, Blk. A-8, P.S.L. Sur. W.O.C. 325 ft.
R. H. Gill No. 1 S. R. Simpson, sec. 8, Blk. C-44, P.S.L. Sur. S.D. 4,800 ft.; standardizing.

Hockley County

Frank A. Bates No. 1 Lockett, C of NE of S sec. 5, Blk. 1, P.S.L. Sur. S.D. 5,117 ft.
The Texas Co. No. 2 Slaughter, Labour 77, League 38, Zavalla Co. Sch. Lds. Drk.

Howard County

W. F. McDermott et al No. 1 Lucas, sec. 18, Blk. 29, Twp. 1n. T.&P. Sur., 5 mi. N of Dodge pool. Drlg. 566 ft.

Hudspeth County

Haymon Krupp Oil & Ld Co No. 1 Thaxton, SE¼ sec. 34, Blk. 74, Twp. 6.; drlg. 3,062 ft.; no report.
Haymon Krupp No. 1 Briggs, sec. 24, Blk. 73, Twp. 7, T.&P. Sur. Drlg. 500 ft.

Jeff Davis County

H. D. Wilcox et al No. 1 Jones-Coffield S.D. 3,315 ft.

Loving County

Barnett Pet. Co. No. 1-A Johnson, sec 2 Blk. 57, Twp. 1, T.&P. Sur. Drlg. 1,960 ft.
Barnett Pet. Corp. No. 1-B W. D. Johnson, sec. 12, Blk. 56, Twp. 1, T.&P. Sur. Drlg. 2,559 ft.
Carpenter & Grierson No. 1 Mrs. Bennie Barnes, 330 ft. from S and 2,310 feet from W, sec. 22, Blk. C-25, P.S.L. Sur. Loc.
Continental Oil Co. No. 1 E. C. Marrs, sec. 20, Blk. 54, Twp. 2, T.&P. Sur. Drlg. 2,862 ft.

Martin County

J. L. Green et al No. 1 O. B. Holt, C of Labour 20, Lge. 319, Garza Co. Sch. Lds. Drlg. 1,313 ft.

Nolan County

M. S. Ingleright & L. E. Hults No. 1 Blank, Blk. 1-A, H.&T.C. Sur., near Decker. S.D. 2,560 ft.

Pecos County

Adams No. 1 A. A. Gray, 150 ft. from S and 1,470 ft. from E, sec. 593, Blk. 105, G.C.&S.F. Sur., 12 miles N of Fort Stockton. Loc.
Messenger & Osburn No. 1 Humble-Young, sec. 49, Blk. 10, H.&G.N. Sur. T.D. 1,807 ft.; to shoot.
S. Thompson No. 1 Elsinore Cattle Co., sec. 54, Blk. D, G.C.&S.F. Sur. Dirg. by drill stem.
Trans-Pecos Oil Co. No. 1 Popham. T.D. 535 ft.; lost hole; skd. 25 ft. south; T.D. 1,000 ft.; to set csg.
W. K. Tuller No. 2 Perry. T.D. 1,920 ft. T.D. 1,922 ft.; shot; C.O.
Wilcox O. & G. Co. No. 1 Serf, sec. 27, Blk. 130, T.&St.L. Sur. Loc.

Presidio County

L. C. Brite No. 4 fee, C NW¼ sec. 113, Blk 12, G.H.&S.A. Sur. S.D. 4,375 ft.
Sadler Bros. et al No. 1 Bagley. S.D. 3,315 ft.

Reagan County

K. E. Sherman No. 1 W. E. Friend, SW cor. sec. 3, Wm. Allen Sur. W.O.C. 2,300 ft.
Moore Bros. No. 1 University, sec. 8, Blk. 7. Fsg. 2,860 ft.

Reeves County

Barnett Pet. Corp. No. 1 Ely, sec. 38, Blk. 71, P.S.L. Sur., 12 mi. NW of Toyah. Fsg. 1,400 ft.

Runnels County

Price & Koener No. 1 Beddo, sec. 51, Thompson Casey Sur. T.D. 71 ft.; set csg.
S. Z. Oil Co. No. 1 B. Fletcher, E. C. Goos Sur. S.D. 3,306 ft.
Stevens & Glover No. 1 Fowler, sec. 150, E.T.R.R. Sur., 2 mi. NE of Ballinger T.D. 1,095 ft.; S.D.

Schleicher County

J. W. Cooper No. 2 B. Page sec. 40, Blk. L, G.H.&S.A. Sur. S.D. 4,655 ft.
Tex.Tor Oil Corp. No. 1 Judkins & Spencer, C of SW¼ sec. 33, Blk. A, A.&B. Sur. T.D. 3,133 ft.; C.O.

Scurry County

Robinson Drlg. Co. No. 1 Martin, sec. 147, H.&T.C. Sur. Drlg. 1,466 ft.
T. G. Shaw Oil Co. No. 1 First Natl. Bank, T.D. 1,583 ft.; set csg.

Sterling County

Wilcox O. & G. Co. No. 1 Kinnebrew Est., sec. 101, Blk. 2, H.&T.C. Sur. Drlg. 1,900 ft.
Snowden & McSweeney No. 1 Harris, sec. 110, Blk. 6, H.&T.C. Sur., 20 mi. SE of Sterling City. M.I.M.

Sutton County

Ordovician Oil Co. No. 1 Evans, sec. 1, L. Stubblefield Sur., 32 mi. SE of Sonora. Drlg. 2,912 ft.

Terrell County

D. & S. Oil Co. No. 1 Sam Bell. S.D. 345 ft.

Terry County

Anthony & Rice No. 1 Brownfield, C NW¼ sec. 28, Blk. A-1, E.L.R.R. Sur. S.D. 5,340 ft.

Tom Green County

Humble O. & R. Co. No. 1 Lewis & Wardlaw, sec. 5, Blk. 17, H.&T.C. Sur. R.U.R.

Ward County

L. F. White et al No. 1 Rector-Monroe, E cor. sec. 3, Blk. 1, W.&N.W. Sur. Top Del. L. 4,635 ft.; top Del. sd. 4,670 ft.; T.D. 4,710 ft.

Yoakum County

American Liberty Oil Co. No. 1 Claywater. Drlg. 3,260 ft.
American Liberty Oil Co. No. 1 Sawyer, SE¼, sec. 702, Blk. D. Loc.
Denver Prod. & Ref. Co. No. 1-A Whittenburg, sec. 830, Blk. D. T.D. 1,600 ft.; crooked hole.
J. L. Greene et al No. 1 Nevels, sec. 709, Blk. D. T.D. 140 ft.; bldg. drk.
Moore Bros. No. 1 Cleveland, sec. 706, Blk. D, J. H. Gibson Sur. T.D. 5,506 ft.; P.B. to 5,328 ft.
Skelly and Sun Oil Co. No. 1 Kiser, sec. 640, Blk. D. W.O.C. 230 ft.
Standard of Texas No. 1 M. B. Sawyer, sec. 576, Blk. D, J. H. Gibson Sur. T.D. 5,214 ft.; to test.
L. Stogner et al No. 1 J. A. Blade., sec. 103, Blk. D. Loc.
Texas Co. No. 1 Walker, sec. 794, Blk. D El. 3,656 ft.; T.D. 5,180 ft.; P.B. to 5,162 ft.; shot; acidized; to reacidize and shoot.
P. N. Wiggins et al No. 1 Bartlett, sec. 359, Blk. D. S.D. 150 ft.; bldg. drk.

RANGER (CENTRAL TEXAS) DISTRICT

Brown County

C. R. Cox, Tr., No. 1 Jan Lee, sec. 11, B.B.B.&C. Sur., NE cor. county. S.D. 240 ft.
R. A. J. Cox et al No. 1 H. A. Nichols, 10 mi. SE of Cross Cut, F. Wardsziski Sur., sec. 477. Drlg. 1,810 ft.

Callahan County

Hal Hughes No. 1 Poindexter, sec. 350, Geo. Hancock Sur., 2 mi. NE of Oplin. Drlg. 865 ft.
J. C. Jackson et al No. 1 Thompson, 2 mi. S. Eula, sec. 30, B.B.B.&C. Sur. S.D. 1,350 ft.
Phillips Pet. Co. No. 1 Cozart, 1 mi. NW Scranton, M. Cherry Sur. Spud. and S.D.

Coleman County

J. F. Brock No. 1 J. H. Livingston, SE cor. SW¼ county, J. D. Waters Sur. No. 208. Spud and S.D.
Dixie O. & G. Co. No. 1 Reaves, 6 mi. NW Bangs, J. M. Rhine Sur. No. 629. S.D. 805 reprs.

Comanche County

N. D. Gallagher et al No. 1 Mrs. B. L. Terry, Desdemona pool, N. H. Kuykendall Sur. T.D. 4,209 ft.; U.R. 8¼-in.
Dobbs Oil Co. No. 1 Hodges, sec. 11, Blk. 2, H.&T.C. Sur. Drlg. 275 ft.

Eastland County

G. D. Chastain et al No. 1 Weddington, 4 mi. N Cisco, sec. 496, S.P.R.R. Sur. T.D. 2,080 ft.; fishing.
Hickok Prod. & Dev. Co. No. 1 Van Parmer, NW cor. county, sec. 477, S.P.R.R. Sur U.R. 10-in. 1,760 ft.
J. D. Kittrell No. 1 Reynolds, 5 mi. E of Carbon, sec. 23, H.&T.C. Sur., Blk. 1. S.D. 600 ft.
Mumark O. & G. Co. No. 1 Downtain, sec. 14 H.&T.C. Sur. Blk. 4, 3 mi. N Eastland. S.D. 2,140 ft.

Erath County

Arnold Oil Co. No. 1 McMillan, 2 mi. SE of Desdemona, T. H. Dixon Sur., Abst. 1103. S.D. 160 ft.
Hoffman & Page No. 1 Clayton, D. J. O. Millard Sur., 2 mi. SE Desdemona. Drlg. 1,200 ft.

Haskell County

E. W. Marland & H. B. Drake No. 1 Corothers, 6 mi. S Haskell, sec. 67, D. E. Zaaz Sur. Drlg. 2,850 ft.

Jack County

Bennett Pet. Corp. No. 1 J. S. Rhodes, 2½ mi. NE Bryson, W. Higgins Sur., Abst. 2,199. Loc.
J. P. Burrus No. 1 W. J. Eatherly, J. Helmstutler Sur. T.D. 1,200 ft.; S.D.
Hanlon-Buchanan, Inc., No. 1 Rankin, 2 mi. NE Rhodes pool, J. W. Matlock Sur., Abst. 1,479. T.D. 2,873; W.O.C.
Hanlon-Buchanan, Inc., No. 1 Worthings, E edge Avis, S.A.&M.G. Sur., Abst. 589. Drlg. 2,800 ft.
H. B. Madden No. 1 J. L. Mask, sec. 2708, T.E.&L. Sur. S.D. 3,000 ft.
Nelson Oil Synd. No. 1 Henderson, 2 mi. SW Bryson, A. S. Ensworth Sur., Abst. 1789. T.D. 3,002 ft.; C.O.
Panhandle Ref. Co. No. 1 D. R. Sewell, 4 mi. E of Bryson, Mary Hamilton Sur., Abst. 262. Sd. 3,049-62 ft.; shot with 10 qts.; drlg. 3,195 ft.
Perren & Gillespie No. 1 Clayton Bros., L. Knight Sur., Abst. 324, 2 mi. NE Bryson. Drk.
O. J. Perrin No. 1 J. S. Rhodes, 3 mi. NE Bryson, 330 ft. from N & W J. W. Coates Sur. Loc.
Taubert & McKee No. 1 Eatherly, 3 mi. NW of Gibbtown, SE cor. county, J. H. Henderson Sur., Abst. 1749. Spd. and S.D.
R. A. Westbrook No. 1 W. Knox, sec. 83, B.B.B.&C. Sur. S.D. 3,775 ft.
Joe Worsham et al No. 1 Cash, 3½ mi. NE of Bryson, I. White Sur., Abst. 895. T.D. 3,210 ft.; drlg. by tools.

Jones County

Butler & Horne No. 1 Mrs. R. Cox, 6 mi. E. Hamlin, sec. 3, G.H.&H. Sur. Drlg. 700 ft.
E. P. Campbell et al No. 1 L. H. Lee, 5 mi. S Hawley, 660 ft. from N, 1,000 ft. from E of SE¼ sec. 16, T.&P. Sur., Blk. 16. Rig. up.
Fain, Mcgaha & Roberts No. 1 Daugherty, 2 mi. S Sandy Ridge pool, sec. 37, T.&P. Sur., Blk. 15. M.I.M.
Fain & McGaha Oil Corp. No. 1 Francis Olson, 3 mi. NE Avoca, sec. 190, B.B.B. &C. Sur. Drlg. 1,600 ft.
Falls Ref. Co. No. 1 Harris, 4½ mi. NE Hawley, 220 ft. from N and E sec. 47. T.&P. Sur., Blk. 15. Drlg. 1,050 ft.
Farris & Ungren & Frazier No. 1 Ida Nolan, 2 mi. E of Stamford, sec. 3, B.B.B. &C. Sur. Drlg. 1,300 ft.
W. L. Herring et al No. 1 J. W. Grogan, ½ mi. SE Truly, 1,700 ft. from N and 150 ft. from W of farm in Maria Rita Longario Sur. Rig. up.
T. D. Humphrey No. 1 Fielder, 2½ mi. E Anson, 330 ft. from N and E lines of SE¼ sec. 34, O.A.L. Sur. Loc.
Iron Mountain and Humble No. 2 Jones & Stasney, 3 mi. NE of Avoca, sec. 196, B.B.B.&C. Sur. Sand 1,582 ft.; filled up and flowed in 1 hr. 45 min.; running pipe.
Kleiner & Brown, Eagle Oil Co. No. 2 Fields, Samuel Andrews Sur. No. 191, 3½ mi. E Hawley. Drlg. 325 ft.
M. A. Mead No. 1 H. Osment, S.D. 500 ft.
Murray & Harrison et al No. 1 Little, Sur. Drlg. 3,505 ft.
Oil States Expl. Co. No. 1 Olson, 4 mi. N Avoca, sec. 182, B.B.B.&C. Sur. Loc.
Riddle et al No. 1 J. D. Pirtle, 5 mi. SW Anson, sec. 6, T.&P. Sur., Blk. 17. T.D. 2,487 ft.; treating with acid.
Roeser & Pendleton No. 1 Rosenquist, 4½ mi. NE of Avoca, sec. 181, B.B.B.&C. Sur. Drlg. 1,980 ft.
Shaheen Oil Co. et al No. 1 Jenson, 2 mi. E of Avoca, sec. 198, B.B.B.&C. Sur. T.D. 1,570 ft.; S.D. for 8¼-in.
Southern Oil Co. No. 1 B. W. Thane NE cor. County. Andrew Jones Sur. 114. T.D. 2,247 ft.; U.R. 6⅝-in.
Stanton & Miller No. 1 Gaither, 4½ mi. N of Anson, sec. 38, B.B.B.&C. Sur. Drlg. 600 ft.
A. G. Swanson No. 1 Manley, 7 mi. S Nugent, sec. 46, T.&P. Sur., Blk. 14. T.D. 1,918 ft.; C.O. 1,918 ft.
Felmont & Adams No. 1 Woodson, 1½ mi. SE Avoca, sec. 200, B.B.B.&C. Sur. Drlg. 1,100 ft.
Ungren & Frazier et al No. 1 Carl Ecdahl, 3½ mi. NE Avoca, sec. 188, B.B.B.&C. Sur. S.D. 2,059 ft.
C. E. Waite, Trust, No. 1 Ray, 3½ mi. SE of Stamford, sec. 7, D.&D.A. Sur. Spudded.

Palo Pinto County

W. H. Clement No. 1 Federal Life Ins. Co., 2 mi. W Mineral Wells, sec. 51, T.&P. Sur., Blk. A (E of B). S.D. for pipe 400 ft.
Bill Cole et al No. 1 J. W. Harris Est., NW cor. county, De La Garza Sur. Drk.
Paul Garrett No. 1 Maury Bears, NE cor. county, sec. 2,572, T.E.&L. Sur. S.D. 470 ft.
W. K. Gordon et al No. 1 Johnson, 5 mi. N Gordon, 2,400 ft. from N and 4,500 ft. from W of John Bird Sur. Loc.
Henry Hobbs et al No. 1 Bessie Holt, 4 mi. S. Graford, sec. 1,783, T.E.&L. Sur. S.D. 200 ft.
Lone Star Gas Co. No. 1 Hart Oil Corp., CWL county, sec. 19n, T.&P. Sur., Blk. 3, 4,000-ft. test. Drlg. 2,750 ft.
Earnest Lloyd et al No. 1 Bailey, 3 mi. NE Graford, sec. 2,003, T.E.&L. Sur. S.D. 1,802 ft.

Shackelford County

Owens-Snebold Oil Corp. No. 1 Haterius, sec. 163, B.B.B.&C. Sur. Drlg. 1,300 ft.
Pardue et al No. 1 M. Davis, 5 mi. S Bluff Creek pool, sec. 20, T.&P. Sur., Blk. 13. Drlg. 825 ft.

Stephens County

Barnett Pet. Corp. No. 1 J. Q. Corbett, 4 mi. SE Ivan, sec. 3, S.P.R.R. Sur., Blk. 3. Marble Falls 3,994-95 ft.; est. 10,000,000 ft. gas; drlg. plug.
Clark & Condon et al No. 2 Echols Heirs, Blk. 3, S.D. 4,017 ft.
Cox & Caprito No. 1 Donnell, 1 mi. SW Eliasville, sec. 1,208, T.E.&L. Sur. Sand 2,956-74 ft.; S.D. 3,270 ft.
Dean Bros. & Fortex Oil Corp. No. 1 Watson, 5 mi. SW Caddo, sec. 28, T.&P. Sur., Blk. 6. Drlg. 2,270 ft.
W. B. Hamilton No. 1 B. O. Grant, CWL of county, sec. 63, B.A.L. Sur. 2,500-ft. test; S.D. 2,050 ft. for 8¼-in.
O. J. Perren No. 1 J. K. P. Hughes, NE cor. County of NW¼ sec. 6 A.B.&M. Sur., Abst. 2,683. T.D. 4,011 ft.; C.O.

Stonewall County

General Crude Oil Co. No. 1 W. J. Bryan, 7 mi. N Hamlin, Subd 10, Wm. Varde-

(Continued on Page 316)

PERSONAL

J. ELMER THOMAS, petroleum analyst, with office in Houston, Tex., has returned to the United States after spending the summer in Europe. He was a delegate to the World Petroleum Congress in Paris, France, last June, attended the geological congress in Moscow and followed that with an extended excursion through the oil fields of the Soviets. He is now in the East and plans to be back in his office October 15.

LOUIS CHETTA, LEO MERAUX, JAMES T. FLYNN, ED TEBO and WESLEY SKARDON, of New Orleans, La., and J. W. ANDERSON, of Baton Rouge, La., have organized the 3-Sand Oil Company, which will operate in the Caddo field, Louisiana. Mr. Chetta is president, Mr. Meraux vice president, and Mr. Flynn secretary and treasurer. The last-named is a veteran operator in the Caddo and Homer fields.

J. EDGAR PEW, vice president in charge of production for the Sun Oil Company, Philadelphia, Pa., is in Texas on business and to attend the Houston Oil Show.

RALPH A. McGOEY, member of Union Oil Company's geological and engineering staff in Texas, is spending his vacation in Los Angeles and may remain on the West Coast for an indefinite period.

CHARLES H. SNELSON has joined the Seaboard Oil Corporation and taken up residence in Corpus Christi, Tex., where he will be in charge of the company's district production division. Mr. Snelson was formerly head of the Houston production office of the Skelly Oil Company.

A. M. EBRIGHT of Wichita, Kans., has been made chief counsel for the Cities Service Oil Company and Cities Service Gas Company, it was announced this week. Mr. Ebright, who will assume his new post October 16, will fill the vacancy caused by the resignation of J. W. FINLEY last June. He was formerly judge of the district court in Sedgwick County, Kansas.

G. C. RIVES, former assistant superintendent of the Standard Pipe Line Company, with headquarters in Rodessa, La., has been made division superintendent of the company. Mr. Rives will maintain his residence in Trees City, La., from which point field operations will be directed. He will have charge of the pipe line activities of the company in Caddo Parish, Sabine Parish, Miller County, Arkansas and Cass County, Texas. S. A. SHEPPARD, superintendent at Rodessa for the past year and a half, has been transferred to South Louisiana, where a new district has been created.

WILLIAM BURKS, Cut Bank, Mont., oil operator, visited the new Illinois oil field recently and while looking around to see if the boom might offer something of interest to him met DORSEY HAGER, author and former Montana geologist, and JOHN O'NEIL, who used to be active in the Sunburst field of Montana. Both were in the middle of the oil excitement.

HARRY C. WIESS, Houston, Tex., president of the Humble Oil & Refining Company, is being urged for election to the directorate of the Federal Reserve Bank in Dallas, Tex. Twenty-two banks, members of the Federal Reserve System, in Houston, Galveston, Beaumont and Port Arthur, have jointly sent a letter to the other member banks asking them to support Mr. Wiess as successor to A. S. CLEVELAND, who has indicated he will retire next month.

E. F. CRITCHETT, assistant manager of the Huron, S. D., sales division of Standard Oil Company of Indiana since October 1, 1935, has been promoted to motor oil sales promoter and returned to the general offices in Chicago, where he was rural sales promoter from 1933 to 1935. ROSS B. MATSON, sales promoter at Minot, N. D., since November 1, 1936, has been promoted to assistant manager and returned to succeed Mr. Critchett in Huron, where Mr. Matson joined the company in 1926 and served until 1936.

R. C. McKEE has been appointed assistant manager of the advertising department of the Standard Oil Company of Indiana. He will succeed N. H. REED, who will retire on annuity January 1, 1938, but will assist meanwhile in the reorganization of the department. Work which Mr. McKee has been handling as editor of two of the company's house publications, Standard Service News and Standard Truck Service News, will be taken up by E. D. WHITE, transferred from the Standard office in South Bend, Ind. Mr. Reed and a stenographer were the entire advertising department when the former joined the company 23 years ago.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

Stock of the California Petroleum Corporation, organized to take over the Doheny-Canfield oil properties, is now being traded in on the New York Stock Exchange. It opened at 72. Capital stock is $17,500,000.

The oil industry in Tulsa nearly monopolized the Tulsa Industrial Durbar. Many beautiful floats were in the parade headed by the float of the Durbar queen, Miss Gladys Belle Stebbins. The queen's float was driven by R. Otis McClintock, chief clerk of the Gypsy Oil Company's land department.

Victor Gretter, 70, pioneer drilling contractor and producer, but since 1887 in the employ of the Standard Oil Company, introducing and pushing the use of oil as fuel, dies in Englewood, Ill. He invented many devices used in the industry.

20 YEARS AGO

Zinc and petroleum are found in the same test hole in the Joplin zinc district in Missouri, the zinc vein at 300 feet and the oil "showing" at a lower, but unnamed, level. The oil showing was too small for development.

Levi Watt Gibson, one of the founders of the Manufacturers Light & Heat Company, dies in Detroit, Mich.

A 20,000-barrel well of Empire Gas & Fuel Company in Butler County, Kansas, flowed 2½ days, producing about 50,000 barrels, was shut in for lack of storage, and when opened produced only salt water.

10 YEARS AGO

The Spindletop field is the largest producer in the Gulf Coast area, with an average around 50,000 barrels a day. The Borger field in the Texas Panhandle is producing 50,500 barrels a day. Crane County, West Texas, averages 118,000 barrels per day. The Seminole field in Oklahoma averages around 454,000 barrels a day.

O. B. Manross, who built for Uncle Sam Oil Company the first refinery in Tulsa, and later became superintendent of the Cosden & Company plant in Tulsa, dies in that city.

ROSS LEARD, petroleum engineer for the Magnolia Petroleum Company, Dallas, Tex., announced an additional member of the family. JOE BEN is a new arrival at his home.

PROF. H. A. EVERETT, of the Pennsylvania State College, will deliver a paper on "Rating Oils for Cylinder Wear by the Iron Contamination Method" before the world lubrication conference in London, England, October 13-15.

W. G. PRINCE has resigned as field production superintendent for the Stanolind Oil & Gas Company at Lake Charles, La., and joined Texas Crusader Oil, Inc., as production superintendent. His appointment was effective October 1.

FRANK HAGAMAN, field superintendent for the South Penn Oil Company in the Rockcastle field, Lawrence County, Kentucky, has been transferred to McLean County, following completion of the company's second good producing well in McLean.

HAROLD G. NEELY and MRS. NEELY, of Fort Worth, Tex., are spending a month's vacation in California. Mr. Neely is president of the Iron Mountain Oil Company, which recently opened the Avoca field in Jones County, and which has uncovered another pay, shallower than the regular pay, in the new field.

TOM BROWNFIELD, chief scout for the Carter Oil Company, Tulsa, spoke Monday evening of this week before the petroleum industry class at the Tulsa evening high school on the history of Mid-Continent oil fields. Mr. Brownfield devoted special attention to the earlier pools of the region, and he described their development in chronological order.

PARAGRAPHS

J. P. HAYS, for the past three years district petroleum engineer for the Shell Petroleum Corporation in the Texas and Louisiana Gulf Coast, has been advanced to full professorship in the department. The entire staff of the department is composed of graduates in petroleum engineering.

HARRY KRAMER, of Chicago, accompanied by ARNOLD M. PHIPPEN, mining engineer of Boise, Ida., and H. HOERSCH, Casper, Wyo., oil man, has completed an inspection of the Tobin Hills, Inc., property of the Bull Run range of mountains in the Blue Jacket mining district, Elko County, Nevada. Mr. Kramer is understood to have obtained an option on the property.

W. D. ELLISON, manager of lubricant sales in the Southern California division of the General Petroleum Corp.; R. CUBICCIOTTI, manager of lubricants and special products of the Union Oil Company, and L. J. GRUNDER, lubrication engineer of the Richfield Oil Corporation, were the guests of honor at the monthly meeting of the Los Angeles Petroleum Accountants Society. They delivered talks on lubricating practice and service.

DR. WASHINGTON GRAY, Anglo-Iranian Oil Company geologist of London, England, is in New York on a business mission.

V. C. ILLING, professor of oil technology at the Imperial College of Science and Technology, London, returned to England last week after spending several weeks in New York and other American cities.

TOM GRAHAM and JOHN L. SULLIVAN, of Corpus Christi, Tex., are the principal stockholders in the newly formed Noleda Pipe Line Company of that city. Both are prominent oil operators of Southwest Texas.

H. A. MEYER, who resigned two years ago as assistant to the president of the Sinclair Prairie Marketing Company to take charge of a large plantation he had inherited in Virginia, has returned to the Mid-Continent. Mr. Meyer is now in the real estate business at Independence, Kans.

R. H. MORRISON, head of Bahrein Petroleum Company's producing division and a director of California-Texas Oil Company, has returned to New York after spending several months in Bahrein and in San Francisco. He is now establishing a production department in New York to handle Bahrein Petroleum's operations.

HARRY BAUER, president of the Southern California Edison Company and prominently identified with the oil industry, has adopted a new method of getting his annual report and message to his 75,000 stockholders. Mr. Bauer broadcast his message and report so that stockholders could tune in on designated radio stations and hear it.

C. H. WHITMAN, formerly with the Standard Oil Company (New Jersey) in New York, has been transferred to Standard Oil Company of Louisiana's crude oil purchasing department in Shreveport, La.

RUSSELL E. HAVENSTRITE, president of the California Western Oil Company and the Iniskin Drilling Company, has left his Los Angeles office for Alaska, where the Iniskin company's wildcat is drilling at a depth of approximately 4,800 feet on Cook Inlet. As winter is closing in, Mr. Havenstrite and his associates are making vigorous efforts to complete the test before a shutdown becomes imperative. Excellent progress is being made notwithstanding difficult and inclement weather conditions, but no conclusive signs, either favorable or unfavorable, have been brought to light.

GEORGE S. HEYER, president of the General Crude Oil Company, Houston, Tex., has been elected a member of the board of trustees of the Houston Museum of Fine Arts. He fills the vacancy created when WALLACE E. PRATT, former vice president and director of Humble Oil & Refining Company, moved to New York to become a member of the executive committee of the Standard Oil Company of New Jersey.

P. J. PHILLIPS, engineer, associated with the Cities Service Oil Company the past 10 years in the gasoline division, has accepted an appointment on the staff of the Agricultural and Mechanical College in Stillwater, Okla. He will teach the theory and the operation of the internal combustion engine. With Cities Service he worked in the construction and operation of gasoline plants and spent a year in the test and contracts department.

Started at Desdemona

From roustabout to vice president in 13 years is the record achieved by W. M. Griffith, of the Plymouth Oil Company, and it seems to typify the readiness of the oil industry to recognize ability and capacity for hard work, both of which they say Mr. Griffith has in generous measure.

W. M. GRIFFITH

Born in Butler, Md., in 1897, Mr. Griffith passed his boyhood in the East. He was a lieutenant in the World War. Following his discharge, he went to Texas in 1919, starting as a roustabout in the Desdemona boom. His experience in the next few years provided a solid foundation for the advancement which began soon after he joined the Big Lake and Plymouth oil companies in 1924 at Texon. By the time he had risen to assistant superintendent in the West Texas district the Plymouth Oil Company opened the rich Plymouth field in San Patricio County, and he was transferred to that area in 1934 as superintendent.

A record of efficient management brought about election in May, 1937, to vice president and general manager. He now is in charge of all Texas operations of the company. Mr. Griffith is married and has one son. Hunting, fishing and polo are his hobbies. Polo especially interests him, for he loves a horse. His home and office are in the Plymouth camp, near Sinton, Tex. Every month he attends directors' meetings at the company's head offices in Pittsburgh, Pa.

J. V. MURRAY, director of California-Texas Oil Company in charge of sales, left New York this week for Shanghai, China.

W. S. FARISH, president of Standard Oil Company of New Jersey, is absent from his New York office for a vacation period.

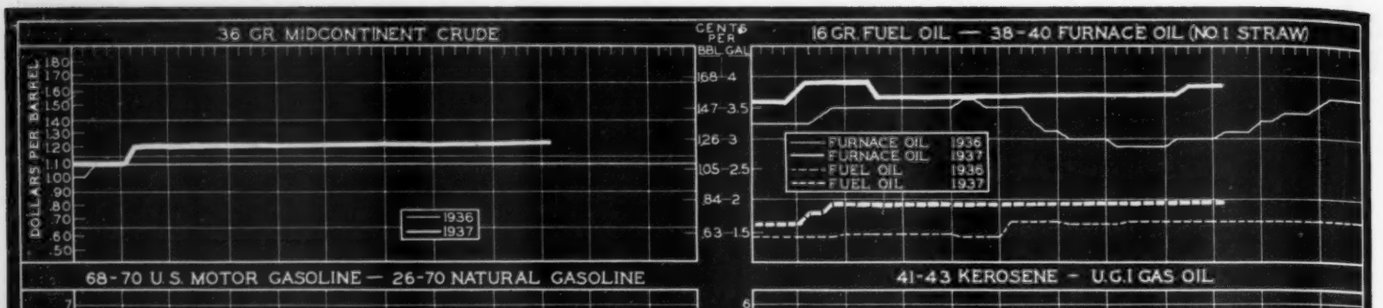
WALTER R. SMITH, Henderson, Tex., geologist and president of the East Shore Oil Company, left last Sunday for Hulticalpa, Republic of Honduras, to appraise a gold mining concession.

W. K. LINK, head of the exploration department, Standard Oil Company of Louisiana, New Orleans, La., with MRS. LINK and children, has returned home from a vacation spent in the East.

JUDITH ELAINE COLE, weight 7 pounds, is a new arrival in the home of MR. and MRS. TAYLOR COLE, of Midland, Tex. Mr. Cole is a member of the geological staff of Texas University Lands.

DR. O. C. BRIDGEMAN, of the National Bureau of Standards, is motoring from his office in Washington, D. C., to the Pacific Coast, where he expects to investigate problems of vapor-locking in the modern high-speed military planes. While on the coast he will try to work in a delayed vacation.

JOHN VAN TINE, veteran oil producer in the Bradford field, Pennsylvania, and MRS. VAN TINE celebrated the fifty-eighth anniversary of their marriage in their home in Bradford Thursday, September 30. Mrs. Van Tine is a daughter of the late John P. Zane, one of the most widely known men in the oil industry during its first 40 years.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Natural Gasoline Now Leads Other Oil Products in Group 3 Market

By T. F. SMILEY

Natural gasoline, which has been putting up a striking market performance this year, was showing the way to the rest of the refined oil products in the Group 3 area this week. Texas material went up another eighth, making the 26-70 grade 4⅛ cents in Oklahoma and 4⅝ cents in Texas.

Blending for winter fuel is in full swing, and some refiners, dependent on the spot market for their supplies, are reported finding difficulty in filling their needs. Oklahoma refiners have been buying freely, and those in interior Texas and Louisiana came in for larger supplies in the past week. This, along with generally sturdy demand, was a factor in the robust market. Oklahoma manufacturers, who had been sending almost all their output to the Gulf, for export or coastwise movement, were shipping substantial quantities to northern points in the past week for refiners whose regular suppliers apparently were short.

Biggest September Business

Manufacturers report September natural gasoline business was the largest in their history, and there is general agreement that 1937 will surpass 1936, which achieved a new high. The September demand so far exceeded the supply that stocks not already earmarked are vanishing. Some of the major manufacturers have depleted their inventories to such a point that to supplement their supplies they are turning to other manufacturers better situated. Manufacturers who last summer sedulously refused to sell except to contract customers are now drawing on their tanks.

Gasoline was continuing to exhibit the effects of diminishing fall consumption. Demand was reported to be holding up well, however, and a satisfactory autumn and winter business is in prospect. The most pronounced signs of sagging were observable in the third-grade material. Many motorists who ran their cars on low-octane fuel without trouble during the hot summer months are turning to the better grades now, with the return of cool weather and its attendant need of higher volatility. The result is that unwieldly accumulations of the third grade have appeared at various spots, and price concessions are reported to have been offered to move them. In the Tulsa area under-the-canopy discounts are said to be received by some retail dealers, and third-grade gasoline is widely obtainable at 13 cents, with some stations selling it at 12½ cents.

The higher-octane motor fuels have suffered little disturbance so far from the seasonal drop in demand, although a slightly softer tone was noticeable. A growing number of refiners are shutting down some of their plants, with the avowed purpose of helping to keep operations in balance with the lessening demand. Gasoline stocks in Oklahoma, Kansas and Missouri were reduced 68,000 bbls. in the week ending September 25, regarded by observers as a creditable showing.

Clashing Views Held

Divergent views were found with reference to the heating oils. Whether this group of products was easy or tight seemed to depend upon whom you asked about it. One thing is sure. The furnace oils are commanding about three-quarters of a cent more than they did in the corresponding period last year. The No. 2 and No. 3 material was reported to be in particularly brisk demand. Some jobbers desiring to build up their storage for winter were said to be having difficulty in finding available material. Some in the trade, informed concerning market conditions, asserted there need be no trouble in getting furnace oils.

Kerosene was firm. Bright stocks, which were reduced a cent in late September as a result of lowered prices in the East, were reported to be steady. One major refiner was said to be shipping as fast as the material was turned out. Neutrals were less vigorous. Wax was well sold up, with prices pointing upward.

Refined Oil Market Barometer

Diminishing fall demand is having its effect on the motor fuel market, with tankcar prices sharply reduced in some areas and showing a disposition to drop in others. Some farseeing refiners are curtailing their operations in the hope of establishing a better balance between supply and demand. Heating oils are moving into their season of heavy consumption and prices are pointing upward.

MID-CONTINENT. Gasoline easier. Heating oils steady. Natural gasoline strong.

EAST COAST. Gasoline down. Bright stocks unsteady. Heating oils somewhat firmer.

GULF COAST. Kerosene and heating oils tight. Gasoline continues weak.

CALIFORNIA. Fuel oil and gasoline unchanged. General market quiet but steady.

PENNSYLVANIA. Bright stocks weaker. Neutrals in fair demand. Gasoline easier.

CHICAGO. Gasoline growingly irregular. Kerosene and domestic fuels firmer.

Fall Temperatures Turning Attention to Heating Oils in Eastern Market

By H. STANLEY NORMAN

NEW YORK, Oct. 5.—Temperatures requiring heating of apartment houses, homes and industrial buildings persisted last week in the North Atlantic district tending to focus increasing interest on fuel oils. While the fuel oil consumption per unit in operation is still only a fraction of winter requirements, the necessity for almost continuous heating is somewhat earlier this year than normal. At least in comparison with last winter, heating requirements for the second half of September and early October are said to be more severe this year.

The domestic fuel oil market has shown no appreciable change. Some of the early season retail price-cutters are still engaged in selling below the market quoted by large refiners, but this element represents only a small fraction of the business. Bulk of the fuel oil business remains confined to movement from refineries or bulk terminals into jobber facilities, so far as the burning territory south of New England and upstate New York is concerned.

In the more northern regions, including Massachusetts, Rhode Island, Vermont, Maine, New Hampshire and northern New York, the demand for kerosene has been particularly strong for the past three weeks. This activity continued and expanded during the past week but at unchanged prices. Tankcar kerosene prices in the Boston territory are ranging from 6.3 to 6.4 cents per gallon. All the large suppliers are settled on the higher figure. There was no change in New York kerosene prices quoted at 6.3 cents per gallon in tankcars and at 6.18 cents per gallon for barge delivery.

Most fuel oil customers have by this time accepted delivery on their first requirements. Subsequently, fuel oil suppliers are using the breathing spell in stocking their inland storage facilities in preparation for the heavy consuming season which probably will start during the last half of October or the first of November.

Market for light fuel oils on the Gulf Coast is showing further improvement and this condition may be reflected in the North Atlantic district within the next few weeks. Gulf Coast refiners are quoting 4½ cents per gallon in most instances for No. 2 fuel oil, but limited quantities probably can be obtained at 4⅜ cents by shopping. Generally speaking, however, the trend in No. 2 fuel oil markets on the Gulf appears to be upward. Two cargoes of No. 2 fuel oil were sold on the Gulf Coast last week for October loading at 4½ cents per gallon.

Kerosene is governed largely by the same set of conditions applicable to No. 2 fuel. The lighter burning oil was reported offered in decreasing quantities on the Gulf Coast last week. Practically all refiners are quoting 5¼ cents per gallon for domestic business.

Retail gasoline prices in New York have returned to normal in most instances, but northern New Jersey remains unsettled. Reports were heard last week that some shading of tankcar gasoline prices made appearance in the New York market, but confirmation was confined to quantities too small to be considered important. On the other hand, large suppliers said they were being pressed to supply the surprisingly brisk demand for motor fuel which is running ahead of seasonal expectations. New York service stations are quoting 98 cents for 5 gallons. New York's city sales tax of 2 cents boosts the consumer outlay to 20 cents a gallon. The pressure applied to some suppliers for delivery of gasoline to their bulk plants and jobber customers probably is the outgrowth of a natural letdown after Labor Day at which time main attention turned to fuel oil. Being a season of uncertainty so far as weather conditions are concerned, companies frequently report difficulty in balancing their coastwise movement in such a manner as to satisfy both gasoline and fuel oil requirements. Some Gulf Coast refiners are reported operating for heavier cuts of kerosene and gas oil at the present time, probably accounting for the fact that little open market gasoline business has been reported from that quarter.

Continued weakness in the Pennsylvania bright stock market is causing some concern among inland refiners and exporters on the eastern coast. The drops during the past two or three weeks have failed to stimulate business to any marked degree and producers are gradually assuming an attitude of indifference electing to store supplies rather than cut quotations. Weakness in the Pennsylvania bright stock market has been reflected in the Mid-Continent and other areas. However, most refiners anticipate that new buying will develop during October and perhaps relieve the pressure to some extent. On the other hand, neutral oils are in fair demand and the quotations prevailing for several weeks are apparently on a firm foundation. Cylinder stocks are somewhat inactive, but have not been subjected to the price depressing factors experienced by bright stock. Inter-refinery purchasing in bright stock has tapered off with factors previously active in the market retreating from their supporting positions.

Motor fuel conditions in western Pennsylvania are virtually unchanged, although competition from Michigan refiners is exerting some pressure on the volume of movement and also the prices. Inroads by Michigan refiners on the western Pennsylvania market have not been severe so far, but are sufficient to cause concern if extended. Since the Great Lakes region, the natural market for Michigan refiners, is one of the first sections of the country to feel restricted motor fuel consumption during the winter, diversion of gasoline into Ohio, Pennsylvania, Indiana and other nearby states is not particularly new or surprising at this season of the year. Heavier fuel oil requirements in vicinity of the Great Lakes as winter advances may have a tendency to restore the balance in the overlapping territories served from Michigan and Pennsylvania refining centers.

Bunker C fuel oil is yielding slightly, according to some reports, in price pressure applied to shore plant business. On the other hand, business and prices with the marine trade have continued satisfactorily. Major suppliers report their volume to be holding up well, with allowance for seasonal changes at the current quotation of $1.35 per barrel. Barge deliveries to shore plants were reported in New York last week at $1.30 per barrel, or lower, but few regard these slight concessions as true indications of the market trend. In response to claims of Anthracite Industries, Inc., that numerous coal-burning installations have replaced oil-burning equipment, oil company spokesmen pointed to the record of rapid rise in fuel oil customers. Oil-burner manufacturers admit that the rise in installations this year might have been even greater if it were

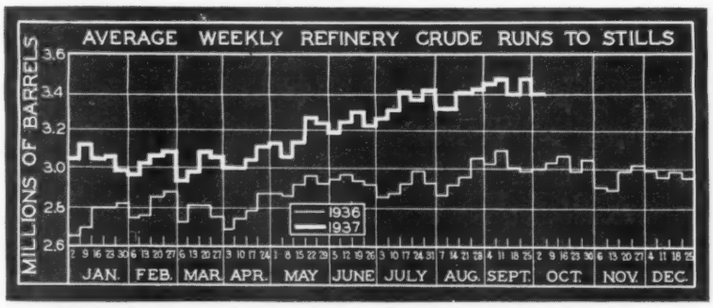
(Continued on Page 314)

A. P. I. Weekly Refinery Statistics

Week Ending October 2, 1937

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	554,000	18,483,000	15,716,000
Appalachian	88.4	112,000	2,510,000	933,000
Indiana, Illinois, Kentucky	92.4	449,000	10,059,000	7,131,000
Oklahoma, Kansas, Missouri	84.7	297,000	6,083,000	3,825,000
Inland Texas	56.6	139,000	1,702,000	1,703,000
Texas Gulf	95.7	778,000	7,892,000	9,995,000
Louisiana Gulf	96.6	139,000	1,602,000	3,140,000
North Louisiana and Arkansas	63.7	42,000	425,000	401,000
Rocky Mountains	69.7	57,000	1,294,000	733,000
California	90.9	533,000	11,686,000	70,149,000
Total reported	89.0	3,100,000	61,736,000	113,726,000
Estimated unreported	.....	300,000	3,530,000	3,350,000
*Estimated total	.....	3,400,000	65,266,000	117,076,000
*Estimated total previous week	.....	3,455,000	65,620,000	116,472,000
*October 3, 1936	.....	3,000,000	57,610,000	112,712,000

*Bureau of Mines, currently estimated.



Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending September 18, 1937	309,405,000 barrels
Week ending September 11, 1937	309,054,000 barrels
Week ending September 19, 1936	295,748,000 barrels

RETAIL OIL MARKETS

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of October 5, 1937

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas a third grade and a premium grade are also available.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wag.	Dir.	Inc. tax	tank-wag.
Chicago, Ill.	15.5	13.5	4.0	10.1
Decatur	15.5	14.0	4.0	10.1
Joliet	15.5	14.0	4.0	10.1
Peoria	15.5	14.0	4.0	10.1
Quincy	15.3	13.8	4.0	9.9
Davenport, Ia.	15.5	14.0	4.0	‡13.1
Des Moines	15.3	13.8	4.0	‡12 9
Mason City	15.7	14.2	4.0	‡13.3
Sioux City	15.5	14.0	4.0	‡13.1
Duluth, Minn.	17.3	15.8	5.0	10.9
Mankato	16.9	15.4	5.0	10.5
Twin Cities	16.9	15.4	5.0	10.5
Lacrosse, Wis.	16 9	15.4	5.0	10.5
Green Bay	17 2	15.7	5.0	10.8
Milwaukee	16.8	15.3	5.0	10.4
Detroit, Mich.	15 4	13.9	4.0	9 8
Grand Rapids	16 5	15.0	4.0	10.9
Saginaw	16.8	14.8	4.0	8.5
Evansville, Ind.	17.0	15.5	5.0	†10.6
Indianapolis	17.2	15.7	5 0	†10 8
South Bend	17.4	15.9	5.0	†9.6
Fargo, N. Dak.	16 9	15.4	4.0	11.5
Minot	18.1	16.6	4.0	12.7
Huron, S. Dak.	17 3	15.8	5.0	10.9
Kans. City, Mo.*	14 9	13.4	4.0	8.0
St. Louis*	15 2	13 7	4 0	9 8
St. Joseph*	14.9	12.4	4.0	8.5
Wichita, Kans.	14.4	12.9	4.0	8.0

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Iowa kerosene prices include 3-cent state tax.

(Exclusive of state general sales taxes, except Indiana and South Dakota.)

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective Dec. 7, 1936, f.o.b. Chicago tank-wagon prices: Range oil, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.3 cents. Stanolex No. 1, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.0 cents. Stanolex furnace oil, 1-149 gallons, 7.8 cents; 150 gallons and over, 7.0 cents. Stanolex A, 1-399 gallons, 5.75 cents; 400 gallons and over, 4.75 cents. Stanolex B, 1-799 gallons, 5.75 cents; 800 gallons and over, 4.75 cents.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			Kero.
	Tank wag. dir.	Tank car con'r.	Inc. tax	tank-wag.
Atl'tic City, N. J.	13 5	12 0	4 0	9.0
Newark	13 5	12 0	4 0	9 0
Annapolis, Md.	15 6	14.1	5.0	9.6
Baltimore	15 0	13 5	5 0	9 0
Cumberland	17 4	14 9	5 0	10 0
Wash'g'n, D. C.*	12 5	11 0	3 0	9 5
Danville, Va.	18 2	15 7	6.0	12.9
Norfolk	17 0	14.5	6.0	11 5
Petersburg	17.3	14.8	6.0	11 7
Richmond	17 3	14.8	6 0	11 7
Roanoke	18 5	16 0	6.0	12.9
Charles'n, W. V.	17.8	15 3	6 0	12.6
Parkersburg	17.1	14 6	6 0	11.2
Wheeling	17 0	15 5	6 0	12 2
Charlotte, N. C.	19 4	16 9	7.0	12 6
Hickory	19 9	17.4	7.0	13 0
Mt. Airy	19 7	17 2	7.0	12.8
Raleigh	19.0	16.5	7.0	12.1
Salisbury	19 5	17.0	7.0	12.7
Charleston, S. C.	18 0	15 5	7.0	11.1
Columbia	19 0	16 5	7.0	12.1
Spartanburg	19.7	17.2	7.0	12.9

*Standard of N. J. has discontinued posting service-station prices at all above points except at Washington and Baltimore where station prices of 16.0 and 18.5 cents, respectively, are in effect.

Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective May 15, 1937, in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax counties): Commercial consumers taking deliveries of 50 gallons (W. Va., 100 gallons) or more at one time will be billed at posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons (W. Va., 100 gallons) will be billed at 4 cents per gallon over posted consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline			Kero.
	Tank wag.	Net dlr	Inc. tax	tank-wag.
Atlanta, Ga.	21.0	18 0	7.0	*†12.0
Augusta	21.0	18 0	7.0	*14.0
Macon	21 5	18 5	7 0	*14.5
Savannah	19.0	16.0	7.0	*12.0
Birm'ham, Ala.	22 0	19 0	8 0	12 0
Mobile	22 0	19 0	9 0	11.0
Montgomery	22 0	19 0	9 0	14.5
Jackson, Miss.	21.0	18 0	7.0	*13.0
Vicksburg	20 5	17 5	7 0	*13 0
Jacksonville, Fla.	20 5	17 5	8 0	†10 0
Miami	20 5	17.5	8 0	†12.0
Pensacola	22 0	19 0	9 0	12 0
Tampa	20 0	17 0	8 0	10 5
Lexington, Ky.	20.0	17.0	6.0	11.0
Covington	19 5	16.5	6.0	11.0
Louisville	20 0	17.0	6.0	10.5
Paducah	20.0	17.0	6.0	10.0

Price basis to tank-wagon consumers: Effective January 4, 1937, 3 cents per gallon below tank-wagon price. Kerosene prices in all states subject to 2 cents discount except in Kentucky where prices are net.

*Includes 1-cent state tax. †Subject to 2-cent discount.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola has a city gasoline tax of 1 cent.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Denver, Colo.	17 5	5.0	11.5
Grand Junction	20 0	5 0	15.0
Pueblo	16.0	5.0	10.5
Casper, Wyo.	18.0	5.0	11.5
Cheyenne	18.0	5.0	13.0
Butte, Mont.	19 5	6 0	15.5
Billings	21.0	6.0	15.5
Helena	21.5	6 0	15.5
Great Falls	21.5	6.0	15.5
Salt Lake, Utah	19.5	5 0	16.0
Twin Falls, Ida.	21.5	6.0	18.0
Boise	21.5	6.0	18.0
Albuquerque, N. M.	17.5	6.5	12.0

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline			Kero.
	Tank wag. con'r.	Di-vided dlr.	Inc. tax	tank-wag.
Ohio points	17.0	16.0	5.0	*13.5

*Includes state tax of 1 cent.

Discounts to commercial consumers, contract: Effective Aug. 12, 1937, for Ohio state-wide, 20,000 gallons or over per month, 1 cent per gallon off commercial consumer tank-wagon price. Tank-wagon price is price to commercial consumers in deliveries of 25 gallons or more; less than 25 gallons gets service-station price. Price to undivided dealers is same as to commercial consumers.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank-wag.
Omaha	17 9	16 4	6 0	10 4
McCook	18 0	14 0	6 0	10 0
Norfolk	18 3	16 8	6 0	10 8
North Platte	18.7	17.2	6.0	11.2
Scotts Bluff	19.4	15.9	6.0	11.9

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract effective Jan. 1, 1935.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	9.0
Fresno, Calif.	18.5	19.5	4.0	12.0
Phoenix, Ariz.	21.0	22.0	6.0	$16.0
Reno, Nev.	20.0	21.0	5.0	13.0
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.5
Spokane	23.0	24.0	6.0	16.5
Tacoma	20.0	21.0	6.0	13.5

‡Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
Albany, N. Y.	15.0	13.5	5.0	9.0
*Met. N. Y.:				
Manh't'n, Br'nx	15.0	13.5	5.0	9.0
Staten Island	15.0	13.5	5.0	9.0
Q'ns & Brklyn	15 0	13 5	5 0	9.0
Buffalo	15.8	14.04	5 0	8.5
Rochester	15 5	14 17	5 0	8.5
Syracuse	15 5	14 12	5 0	9.5
Boston, Mass.	12 5	13 5	4 0	8.5
Portland, Me.	15 8	13.5	5.0	8.75
Manch'ter, N. H.	16 3	14 0	5 0	9.5
Burlington, Vt.	15.9	13.9	5.0	9.5

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point: Monthly purchases under 5,000 gallons, pay divided dealer tank-wagon price at delivery point.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Muskogee, Ok.	15.0	5 0	7.0
Oklahoma City	14.0	5 0	8.0
Tulsa	14 0	5 0	6 0
Ft. Smith, Ark.	15 5	5 0	8 0
Little Rock	18 0	7 5	9 5
Texarkana	15.5	5.0	8.5

Texas

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
Dallas, Tex.	14 0	18 0	5 0	8 0
Fort Worth	13.5	18.0	5.0	5.0
Houston	14.5	18 5	5 0	8.0
San Antonio	14.5	18.5	5.0	8.0

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
N. Orleans, La.	20 5	18.0	*10 0	†13.0
Baton Rouge	18.5	16.0	8.0	12.0
Alexandria	19.0	16.5	8.0	12.0
Lafayette	19.5	17.0	8.0	13.0
Lake Charles	19.5	17.0	8.0	12.5
Shreveport	18.0	15.5	8.0	9.5
Knoxville, Tenn.	21.5	19.0	8.0	14 0
Memphis	19.5	17.0	8.0	12.0
Chattanooga	21.0	18 5	8 0	13.5
Nashville	20 5	18 0	8 0	11.5
Bristol	20.25	19.0	8.0	14.5

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax.

Standard of La. has transferred all stations to dealers except in New Orleans and Baton Rouge where station prices are 24 and 22 cents per gallon, respectively.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one delivery takes posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Louisiana kerosene prices include 1-cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
Philadelphia, Pa.	14 0	12 5	5 0	10 5
Pittsburgh	15 5	13 5	5 0	11.0
Allentown	15 0	13.5	5.0	11.0
Erie	14 5	13 0	5 0	10 0
Scranton	15 0	13 5	5 0	11.0
Altoona	15 5	13.5	5 0	11.0
Dover, Del.	14 5	....	5.0	11.0
Wilmington	14 5	....	5 0	11 0
Springf'd, Mass.	13 3	....	4 0	9.0
Worcester	14.8	....	4.0	9.0
Hartford, Conn.	14 1	....	4 0	9 0
New Haven	14.0	....	4.0	9.0
Providence, R. I.	14 0	....	4 0	8.5

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware, effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank-wagon delivery, 4 cents per gallon above undivided dealer price.

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b Chicago. Each price subject to discount of 1 cent per gallon for 150 gallon lots if covered by contract.

Canada*

3 Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank-wag.	Inc. tax	Kero tank-wag.
Halifax, N.S.	24.0	8.0	18.5
St. John, N.B.	24.0	8.0	18.5
Montreal, Que.	21 0	6.0	17.5
Toronto, Ont.	22 0	6 0	17.0
Hamilton, Ont.	22 0	6 0	17 0
Winnipeg, Man.	27.5	7.0	20.7
Brandon, Man.	29 8	7 0	22.8
Regina, Sask.	29 5	7 0	22.0
Saskatoon, Sask.	32 3	7 0	24.8
Edmonton, Alta.	29 5	7 0	24.2
Calgary, Alta.	27 0	7 0	21.5
Vancouver, B.C.	23 0	7 0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon price. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Retail Price Changes

Standard Oil Co. of Kentucky September 20 reduced tank-wagon and dealer gasoline 1 cent in Atlanta.

Continental Oil Co. September 25 reduced tank-wagon kerosene 2 cents in Fort Smith.

Imperial Oil, Ltd., September 28 reduced tank-wagon gasoline .7 cent in Winnipeg.

New York Market

(Continued from Page 313)

not for the anthracite campaign which is now being launched on its third year. Distillate and heavy fuel-oil burner orders during the first half of this year totaled 205,373 units, compared to 139,519 units during the same period in 1936, leaving oil men in doubt that anthracite has made any appreciable inroads into new business which burner manufacturers might be reasonably expected to capture.

PRICES OF REFINED PRODUCTS

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of October 5, 1937

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 oct. and below (3d gr.)		.05
63-66 octane	.05⅝	.05½
67-69 octane	.05⅝	.05⅞
70-72 octane (regular)		.06
60-62 400 grades:		
62 oct. and below (3d gr.)		.05
63-66 octane	.05⅝	.05½
67-69 octane	.05⅝	.05⅞
70-72 octane (regular)		.06
64-66 375	.05	.05¼
68-70 360	.05⅛	.05⅜

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below		.05
63-66 octane	.05⅝	.05½
67-69 octane	.05⅝	.05⅞
70-72 octane (regular)		.06
60-62 400		.05
64-66 375	.05	.05¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

U. S. Motor grades:		
62 octane and below		.05½
63-66 octane	.05¾	.06
67-69 octane	.06⅛	.06⅜
70-72 octane (regular)		.06½

ARKANSAS (Ark., N. La., Miss. del.)—

U. S. Motor grades:		
62 octane and below		.05½
63-66 octane		.06
67-69 octane	.06⅛	.06⅜
70-72 octane (regular)		.06½

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.05	.05⅛
63-66 octane	.05⅜	.05½
67-69 octane	.05⅝	.05⅞
70-72 octane (regular)	.06	.06⅛
60-62 400 grades:		
62 octane and below	.05	.05⅛
63-66 octane	.05⅜	.05½
67-69 octane	.05⅝	.05⅞
70-72 octane (regular)	.06	.06⅛
64-66 375	.05	.05⅛
68-70 360	.05⅛	.05⅜

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor:		
Below 60 octane	.05¾	.05⅞
60-64.9 octane	.07⅜	.07⅝
65-70 octane	.07½	.07¾
64-66 375	.06⅛	.06¼
68-70 350	.06⅛	.06⅜

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.07½	.08½
58-60 400, 65 oct. and higher	.08¼	.09¼

EAST COAST (Domestic)—

U. S. Motor below 60 octane:		
*New York (Bayonne)	.06¼	.06½
Baltimore	.06	.06¼
U. S. Motor, 60-64.9 octane:		
*New York (Bayonne)	.07¼	.07¾
Philadelphia	.07¼	.07½
Boston	.07¾	.08¼
Baltimore	.07¼	.07½
Charleston, S. C.	.07¼	.07¾
U. S. Motor, 65 and above:		
*New York (Bayonne)	.07½	.08
Philadelphia	.07¼	.07¾
Boston	.07¾	.08¼
Baltimore	.07½	.08
Charleston, S. C.	.07¾	.08¼

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:	
Below 60 octane	.06⅛
60-64.9	.06¼
65 octane and higher	.06¼

Naphtha

PENNSYLVANIA (inland refineries)—

50-52 450 (blending)	.05¾	.06
52-54 450 (blending)	.05¾	.06
54-56 450 (blending)	.05¾	.06⅛

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.04½
Grade 18-55	.05⅝	.05½

NORTH TEXAS—

Grade 26-70		.04⅝
Grade 18-55	.05½	.05⅝

CALIFORNIA—

75-85 375-390	.06¾	.07½

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

Grade 26-70	.04⅝	.04¾

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 i.b.p., 110 flash, 540-550 e.p.	.04	.04¼
41-43 gr., 300-350 i.b.p., 110-125 flash, 500-520 e.p.	.04⅜	.04⅝
46-48 gr., 210-230 i.b.p., 480 max. e.p.	.04⅜	.04⅞

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04⅛	.04¼
42-44	.04¼	.04½

NORTH TEXAS—

41-43	.04⅛	.04¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

41-43	.04½

ARKANSAS (Ark., N. La., Miss. del.)—

41-43	.04¾

PENNSYLVANIA (inland refineries)—

45	.05⅜	.05½
46	.05½	.05⅝
47	.05⅝	.05¾

CHICAGO (Based on Group 3)—

41-43	.04	.04¼
42-44	.04¼	.04½

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04¾	.06

NEW YORK (Bayonne, N. J.)—

41-43	.06 3/10

***GULF COAST (domestic)—**

41-43	.05¼

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

No. 1 prime white, 38-42	.04	.04⅛
No. 1 straw, 38-40	.03¾	.03⅞
No. 2 straw, 32-36		.03¾
No. 2 dark, 32-36	.03⅜	.03⅝
No. 3 zero to 15, 28-32		.03¼
No. 3, 15 and above, 28-32	.02⅝	.02⅞

NORTH TEXAS—

No. 1 prime white, 38-42		.04
No. 1 straw, 38-40	.03⅜	.03¾

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

No. 2, 32-36	.03½	.03⅝

ARKANSAS (Ark., N. La., Miss. del.)—

No. 2, 32-36	.03¾

CHICAGO (Based on Group 3)—

No. 1 prime white, 38-40	.04	.04⅛
No. 1 straw, 38-40	.03¾	.03⅞
No. 2 straw, 32-36	.03⅝	.03¾
No. 2 dark, 32-36	.03⅜	.03½
No. 3, zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02¾	.03

NEW YORK (Bayonne, N. J.)—

*No. 1	.06 3/10
*No. 2	.05½
*No. 4	.05¼

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal.; fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.03⅛	.03⅜
No. 4, low cold test, 24-28	1.05	1.12½
No. 4, 15 and above, 24-28	.90	.95
No. 5, low cold test, 18-22	.85	.90
Below 18 fuel oil, industrial	.80	.85

NORTH TEXAS—

U.G.I. gas oil	.03	.03⅛
No. 4, low cold test, 24-28	1.05	1.12½
No. 5, low cold test, 18-22	.80	.82½
Below 18 fuel oil, industrial	.80	.85

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

10-14 fuel oil, industrial	.80	.85

CHICAGO (based on Group 3)—

U.G.I. gas oil	.03	.03⅛
No. 4, low cold test, 24-28	1.07½	1.12½
No. 4, 15 and above, 24-28	.90	.95
No. 5, low cold test, 18-22	.85	.90
No. 6, low cold test, 10-16	.80	.85

PENNSYLVANIA (inland refineries)—

36-40	.04½	.04⅝

CALIFORNIA—

Los Angeles:		
30-34 gas oil, per bbl.	1.25	1.40
24 plus diesel, per bbl.	1.15	1.40
24 plus diesel (bunkers)	1.55	1.65
12-16 (bunkers at tidewater)	1.05	1.20
10-16 (cargo lots)	.90	1.15
12-17 (tankcars)	1.00	1.15
10-17 (high sulfur)	.55	.95
San Joaquin Valley:		
10-18 (tankcars)	.75	1.00
24 plus diesel, per bbl.	1.30	1.50
San Francisco:		
27 plus diesel		1.50
24 plus diesel (bunkers)		1.70
10-16 (bunkers)		1.20

GULF COAST—

28-30 gas oil	.04¼	.04⅜
28-30 diesel (bunkers)		1.90
Bunkers (bulk cargoes)		.90
Bunker C (bunkers)		1.05

NEW YORK (Bayonne N. J.)—

27 plus, gas oil	.04¾	.04⅞
28-30 diesel (lighterage 6¼c per bbl.)		2.20
28-30 diesel (tankcars)		.05
Bunker C (to ocean-going ships in N. Y. harbor)		1.35
Industrial fuel (tankcars)	.04½	.04¾

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

Bright Stocks:	
190-200 D, 15-25	.20
150-160 D, 0-10	.17
150-160 D, 15-25	.16½
150-160 E, 15-25	.16
100-110 D, 0-10	.15
Steam refined:	
631 green (treated)	.15½
600 dark green (untreated)	.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour test	.21	.22
15 pour test	.20	.21
20 pour test	.19	.20
25 pour test	.18	.19
Steam refined:		
600	.11¼	.11¾
650	.15	.15½
600 Pennsylvania flash	.16½	.17
630 flash	.20	.20½
600 Warren E filtered	.15½	.15¾

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

Zero to 10 Cold Test:	
150-3	.09
180-3	.10
180-4	.09½
200-3	.10½
200-4	.10
250-3	.11½
250-4	.11
280-3	.12½
280-4	.12
300-3½	.13
400-3½	.14
100-2½ paraffin oil	.06
15-20 Cold Test:	
200-3	.10
200-4	.09½
250-3	.11
250-4	.10½
280-3	.12
280-4	.11½

GULF COAST—

Pale Oils:		
200-3	.07	.07¼
300-3	.07½	.07¾
500-3½	.08½	.08¾
750-3½	.08⅝	.09¼
1,200-3½	.09½	.09¾
1,500-4	.09¾	.10
Red Oils:		
200-5-6	.07¼	.07½
300-5-6	.07¼	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale Oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red Oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11¼
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F. color, 400-405 flash:		
Zero pour test	.22½	.23
10 pour test	.21½	.22
15 pour test	.21	.21½
25 pour test	.20	.20½
180 vis. at 70° F., 3 color:		
25 pour test	.23	.23½
200 vis. at 70° F., 3 color:		
Zero pour test	.27	.27½
10 pour test	.26	.26½
15 pour test	.25½	.26
25 pour test	.24½	.25

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.03	.03⅛

PENNSYLVANIA (inland refineries)—

122-124 (a.m.p.) w.c. scale	.0295	.0300
124-126 (a.m.p.) w.c. scale	.0295	.0300

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0445
125-127 (a.m.p.) wax		.0455
128-130 (a.m.p.) wax		.0480
130-132 (a.m.p.) wax		.0505
133-135 (a.m.p.) wax		.0535
135-137 (a.m.p.) wax		.0560
124-126 (a.m.p.) w.s.	.0295	.0300
124-126 (a.m.p.) y.s.	.0265	.0280
Petrolatum in barrels, carload lots:		
Dark green		.01⅞
Amber	.02⅞	.03
Extra amber	.03	.03⅛
Lily white	.06⅝	.06¾
Snow white	.07¾	.07⅞
Cream	.05⅝	.05¾

Export Prices

GASOLINE

GULF COAST—

U. S. Motor		.06⅛
60-62 400		.06¼
61-63 390	.06⅛	.06¼
64-66 375		.06⅜

LOS ANGELES—

U. S. Motor grades:	
55-65 octane	.05¾
65-69 octane	.06
Above 69 octane	.06¼

KEROSENE

GULF COAST—

41-43 prime white	.04⅞
41-43 water white	.05⅛
44 water white	.05⅜

LOS ANGELES—

41-43 water white	.04½	.05

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s. in bbls.)—

Cylinder Stocks:		
600 Warren E	.22½	.24½
600 S.R. unfiltered	.20½	.21
630 S.R. unfiltered	.23½	.24
600 flash, S.R.	.24	.24½
630 flash, S.R.	.28½	.29
Bright Stocks:		
8 color	.32	.32½
6½ plus color in dilution	.31½	.32

NEUTRAL OIL

200-3 color	.31	.31½
150-3 color	.27	.27½

PARAFFIN WAX

NEW YORK (prices per pound)—

123-126 a.m.p.	.04125
125-127 a.m.p.	.0425
128-130 a.m.p.	.0450
133-135 a.m.p.	.0525
135-137 a.m.p.	.0550
Crude scale:	
124-126 w.s.	.0295 .0300
124-126 y.s.	.0265 .0280

CRUDE OIL PRICES

Oklahoma, Kansas, North Central and East Central Texas

(January 28, 1937)

East Texas (May 22, 1937)*	$1 35
Van, Tex.†	1.10
Camp Hill, Tex.	1 27
Cass County, Tex.‡	1.25
Talco	.73
Altus and Tipton, Okla.§	1.20
Other fields (see gravity table).	

*All companies. †Humble Oil & Refining Co.; Pure Oil Co. ‡Texas Co. §Gulf Oil Co. Talco by Humble Oil & Refining Co.

West Texas

See gravity table.

Pecos County*	.91
Pecos shallow†	.81

*Shell Petroleum Corp., Gulf Pipe Line Co., and Humble Oil & Refining Co. †Shell Petroleum Corp.

Rocky Mountain States

(Effective January 28, 1937)

Iles, Colo., light*	$1.18
Iles, Colo., heavy*	1 12
Greybull, Wyo.*	1 30
Torchlight, Wyo.*	1.30
Grass Creek, Wyo., light*†	1.30
Grass Creek, Wyo., heavy (Nov. 4, 1936)*†	.62
Hamilton Dome, Wyo. (Nov. 4, 1936)*	.57
Elk Basin, Wyo., light*†	1.30
Frannie, Wyo., heavy*	.62
Frannie, Wyo., light	.82
Hogback, N. Mex.*	1 33
Pondera, Mont. (Jan. 26, 1936)*	1.05
Salt Creek Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis.	
Big Muddy, Wyo.†	1 23
Rock Creek, Wyo.†	1.20⅛
Lea County, N. M. (see West Texas gravity table)	
Artesia, N. Mex.	.90
Maljamar, N. Mex.	.90
Canon City and Florence, Colo.	1.10
Florence, Colo.	.98
Lance Creek, Wyo.	.97
Sunburst, Mont. (June 5, 1936)	1.20
Cat Creek, Mont.	1.40
Cut Bank, Mont.	1.35

*Standard Oil & Gas Co. †Ohio Oil Co. ‡Continental Oil Co. Cut Bank by Toronto Pipe Line Co.

Middle Western States

OHIO OIL CO.
(Effective January 28, 1937)

Lima	$1 25
Illinois	1.35
Princeton, Ind.	1.35
Midland, Mich. (July 23, 1937)*	1 27
West Branch, Mich. (July 22, 1937)	1 09
Buckeye (July 23, 1937)	1.24¼
Arenac, Mich (July 1, 1937)	1 21
Muskegon, Mich.	1.00
Eastern Kentucky:	
Big Sandy River	1.42
Kentucky River	1.50
Western Kentucky	1.40

*Posted by Pure Oil Co.

Midland, Mich., price posted by Simrall Corp. and Pure Oil Co. includes Greendale, Porter, Beaverton, Crystal and equal grades. West Branch and Arenac by Simrall Corp. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Buckeye posted by Simrall Corp. and Pure Oil Co.

Gulf Coast

(January 28, 1937)

Choctaw and Darrow, La. See note below	
Clay Creek, Tex.	$1 00
Garden Island, La.	1 37
Cleveland, Tex.	1 27
Hardin, Tex.	1.15
Lafitte, La.	1.24
Livingston, Tex.	1.27
Welsh, La.	.98
Tepetate (La.) (Jan. 4, 1937)	1.12

Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields take Mirando gravity prices. Jennings, La., 5 cents lower than Gulf Coast prices on each degree. Segno, Texas, takes Gulf Refining Co.'s Gulf Coast prices. Choctaw and Darrow, Louisiana, posted for first time by Standard Oil Co. of Louisiana, start below 21 degrees at 90 cents, with 3-cent differential up to 25 gravity, then 2-cent differential up to 40 and above, $1.36. Effective October 1, 1937, Stanolind Oil & Gas Co. in Evangeline, La., pays 92 cents for below 20 gravity, adding 2 cents for each degree upward to 40 and over, at $1.34.

Southwest Texas

(January 28, 1937)

Pettus	1.37
Salt Flat, Darst Creek, Hilbig, Carroll Clark, Zoboroski	1.09
Luling	1.00
Lytton Springs	1.12

Saxet and Taft take same gravity table as Gulf Coast.

North Louisiana and Arkansas

Smackover, all grades	$ .90
Tullos and Urania	1.02
El Dorado East field	.90
Union County, Ark.	.90
Ouachita County, Ark.	.90

Eastern States

TIDE WATER PIPE LINE CO.
(Effective June 7, 1937)

Bradford, Pa.	$2 82
Allegany, N. Y.	2.82

SOUTH PENN OIL CO
(Effective June 7, 1937)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	2.82
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.57
Pennsylvania Grade Oil in Eureka Pipe Line lines	2.52
Pennsylvania Grade Oil in Buckeye Pipe Line lines	2.37
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (Jan. 29, 1937)	1.42

PENNZOIL CO.
(Effective June 7, 1937)

Pennsylvania Grade Oil in National Transit Lines:	
Group A	2.82
Includes Cochran, Franklin, Hamilton and Doolittle districts.	
Group B	2.81
Includes Tidioute district.	
Group C	2.80
Includes Turkey and Tidioute districts.	
Group D	2.79
Includes Bear Creek and Porkey districts.	
Group E	2.76
Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredlin. McJunkin, Jameson Kenerdell, Emlenton, Tiona, Lacey and Kinzua districts.	

Price depends on lengths of pipe line haul to plant at Oil City.

PURE OIL CO.
(Effective June 7, 1937)

Cabin Creek, W. Va.	2 52
Bradford Hollow, W. Va.	2.52
Kelly Creek, W. Va.	2.52

Canada

Ontario (Sept. 9, 1933)*

Petrolia	$2.10
Oil Springs	2.17
Turner Valley, Alberta province (Dec. 16, 1936):†	
Clear naphtha	$2.60
Discolored naphtha, 65 gravity and higher	2.36
Discolored naphtha and crude oil, 40-40.9 gravity	1.85
Increasing 3 cents for each degree of gravity with top price for 64-64.9 gravity	2.27

These prices delivered field tankage.
*Imperial Oil, Ltd.
†Imperial Oil, Ltd., and Regal Oil & Refining Co. On crude oil alone British American Oil Co. posted above prices on December 9, 1936.

Mexico

Panuco*	$1.24

*In U. S. currency, f.o.b. ship, based on August spot market transactions.

Crude Oil Price Changes

Stanolind Oil & Gas Co., effective October 1, started posting crude oil prices in the Evangeline, Louisiana, field, starting at 92 cents for below 20-gravity oil and adding 2 cents for each degree upward to 40 and over at $1.34. The prices are the same as the prevailing prices of Gulf Refining Co.

Canadian Fields

(Continued from Page 300)

section 18-9-16w4, 2 miles southeast of Plains No. 1, is working on derrick.

North Taber Exploration Co. is continuing structure tests north of the discovery, and has found satisfactory markers in three completed wells, No. 1 commercial test will be located early in October. H. M. B. Inglis is in charge of operations.

East-Central Alberta

In the Wainwright field, east-central Alberta, Battleview Oils No. 1, NW quarter section 32-47-5w4, on the Battleview structure, will probably be capped, and a second test drilled lower on the structure. No. 1 finished at 1,894 feet after encountering a strong gas flow, estimated at 45,000,000 feet a day. This was partly cased off, reducing it to around 20,000,000 feet. There were strong indications of oil. The company decided to conserve the gas production and drill a second test for oil. The gas production comes from the same horizon as the gas in the Viking field. Pacalta Oils, Ltd., has derrick materials on its acreage, and will locate its No. 1 test, to be spudded about the middle of October. South End Petroleums, Ltd., has temporarily discontinued work on its acreage southwest of Turner Valley and will start a test on the Battleview structure this fall. Battleview Oils No. 2 will be located this month.

Texas Wildcats

(Continued from Page 309)

man Sur., No. 347, Sd. 4,347-52 ft.; T.D. 4,372 ft.; P.B. to 3,509 ft.

General Crude Oil Co. No. 1 B. F. Harrison, NW cor. D. Harcrow Sur., 1½ mi. N of No. 1 Bryan. Drlg. 2,625 ft.

Tarrant County

E. E. Hoffpauir et al No. 2 W. H. Davis, 2 mi. S Arlington, H. Blackwell Sur. S.D.O. 2,140 ft.

Taylor County

Louis Davis No. 1 E. Lincicum, NE cor. county, sec. 21, B.A.L. Sur. T.D. 2,055 ft.; P.B. 2,017; C.O.

A. Findley No. 1 Bowles Est., NE cor. county, 389 ft. from E and 608 ft. from S of sec. 26, B.A.L. Sur. Drlg. 1,450 ft.

Throckmorton County

G. C. Foster No. 2 Brown, 5 mi. NW Woodson, sec. 920, T.E.&L. Sur. S.D. 1,215 ft.

Wise County

Latex Oil Co. No. 1 Smith, 3 mi. E of Bridgeport, Jas. Couch Sur. T.D. 4,075 ft.

Crude Prices by Gravities

	1 Oklahoma-Kansas	2 Oklahoma-Kansas	3 North and Central Texas	4 East Central Texas (Mexia district)	5 North Louisiana-Arkansas	6 Gray County, Texas	7 Hutchinson-Carson counties, Texas	8 Rodessa, Louisiana-Texas and Panola County, Texas	9 Conroe, Tomball, Raccoon Bend, Deep, Saturna	10 Gulf Coast	11 Gulf Coast	12 Lea County, N. Mex. West Texas, except Pecos County,	13 Mirando district, Texas	14 Marion County, Texas	15 Refugio, Greta, Saxet, Taft, Texas	16 Anahuac, Flour Bluff, Dickson, Turtle Bay	17 White Castle, Louisiana	18 Iowa, Louisiana	19 Cayuga, Texas
Bel. 18	....	....	....	....	....	....	....	....	....	$.90	....	....	....	....	....	....	....	$.90	....
18-18.9	....	....	....	....	....	....	....	....	....	.92	....	....	....	....	....	....	....	.92	....
19-19.9	....	....	....	....	....	....	....	....	....	.94	....	....	....	....	....	....	$.94	.94	....
20-20.9	....	....	....	....	....	....	....	....	....	.96	$.95	....	$.96	....	$1.01	....	.96	.96	....
21-21.9	....	....	....	....	....	....	....	....	....	.98	.98	....	.98	....	1.03	....	.98	.98	....
22-22.9	....	....	....	....	....	....	....	....	....	1.01	1.01	....	1.00	....	1.05	....	1.01	1.01	....
23-23.9	....	....	....	....	....	....	....	....	....	1.04	1.04	....	1.02	....	1.07	....	1.04	1.04	....
24-24.9	....	....	....	....	....	....	....	....	....	1.07	1.07	....	1.04	....	1.09	....	1.07	1.07	....
Bel. 25	....	$.98	....	....	$.90	....	....	$.93	....	....	....	....	....	$.90	....	....	....	....	$.88
25-25.9	....	1.00	....	....	.92	....	....	.95	....	1.10	1.10	$.78	1.06	.92	1.11	....	1.10	1.10	.90
26-26.9	....	1.02	....	....	.94	....	....	.97	....	1.13	1.13	.80	1.08	.94	1.13	....	1.13	1.13	.92
27-27.9	....	1.04	....	....	.96	....	....	.99	....	1.15	1.15	.82	1.10	.96	1.15	....	1.15	1.15	.94
28-28.9	....	1.06	....	....	.98	....	....	1.01	....	1.17	1.17	.84	1.12	.98	1.17	....	1.17	1.17	.96
Bel. 29	$1.06	....	$.96	$1.03	....	....	....	....	$1.20	....	....	....	....	....	....	....	....	....	....
29-29.9	1.08	1.08	.98	1.05	1.00	....	....	1.03	1.22	1.19	1.19	.86	1.14	1.00	1.19	....	1.19	1.19	.98
30-30.9	1.10	1.10	1.00	1.07	1.02	....	....	1.05	1.24	1.21	1.21	.88	1.16	1.02	1.21	$1.16	1.21	1.21	1.00
31-31.9	1.12	1.12	1.02	1.09	1.04	....	....	1.07	1.26	1.23	1.23	.90	1.18	1.04	1.23	1.18	1.23	1.23	1.02
32-32.9	1.14	1.14	1.04	1.11	1.06	....	....	1.09	1.28	1.25	1.25	.92	1.20	1.06	1.25	1.20	1.25	1.25	1.04
33-33.9	1.16	1.16	1.06	1.13	1.08	....	....	1.11	1.30	1.27	1.27	.94	1.22	1.08	1.27	1.22	1.27	1.27	1.06
34-34.9	1.18	1.18	1.08	1.15	1.10	....	....	1.13	1.32	1.29	1.29	.96	1.24	1.10	1.29	1.24	1.29	1.29	1.08
Bel. 35	....	....	....	....	....	$.96	$.91	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	1.20	1.20	1.10	1.17	1.12	.98	.93	1.15	1.34	....	1.31	.98	1.26	1.12	1.31	1.26	1.29	1.29	....
36-36.9	1.22	1.22	1.12	1.19	1.14	1.00	.95	1.17	1.36	....	1.33	1.00	1.28	1.14	1.33	1.28	1.29	1.29	....
37-37.9	1.24	1.24	1.14	1.21	1.16	1.02	.97	1.19	1.38	....	1.35	1.02	1.30	1.16	1.35	1.30	1.29	1.29	....
38-38.9	1.26	1.26	1.16	1.23	1.18	1.04	.99	1.21	1.40	....	1.37	1.04	1.32	1.18	1.37	1.32	1.29	1.29	....
39-39.9	1.28	1.28	1.18	1.25	1.20	1.06	1.01	1.23	1.42	....	1.39	1.06	1.34	1.20	1.39	1.34	1.29	1.29	....
40,over	1.30	1.30	1.20	1.27	1.22	1.08	1.03	1.25	1.44	....	1.41	1.08	1.36	1.22	1.41	1.36	1.29	1.29	....

Column 1—Companies posting are Barnsdall, Bell, Champlin, Continental, Cushing, Derby, Dickey, Eason, El Dorado, Empire, Falcon, Globe, Gulf, Johnson, Kanotex, National, Phillips, White Eagle, Stanolind, Sunray, Texas, Sun, Vickers and Wilcox.

Column 2—Anderson & Prichard, Carter, Cosco, Deep Rock, Magnolia, Mid-Continent, Pure, Rock Island, Shell, Sinclair, Skelly and Tide Water.

Column 3—All purchasers.

Column 4—Humble Oil & Refining Co. and Sinclair Oil Purchasing Co.

Columns 5, 6, 7 and 8—All purchasers.

Column 9—Humble Oil & Refining Co. and Sun Oil Co. Tide Water Oil Co.'s schedule starts at 35 degrees, $1.34 with 2-cent spread up to 40 and over at $1.44. (Raccoon Bend prices are for deep sand oil.)

Column 10—The Texas Co. (Gulf Refining Co. pays same prices up to and including 34 gravity, but continues its 2-cent spread up to 40 and over at $1.41.)

Column 11—Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Sun Oil Co.

Column 12—All purchasers.

Column 13—All purchasers (effective July 6, 1937).

Column 14—Magnolia Petroleum Co.

Column 15—Humble Oil & Refining Co. (effective July 6, 1937).

Column 16—Humble Oil & Refining Co. prices start at 30-30.9 gravity at $1.16 adding 2 cents for each degree upward to and including 40 and over at $1.36.

Columns 17 and 18—Shell Petroleum Corp.

Column 19—Tide Water Oil Co.

MARKET RECORD, ACTIVE OIL STOCKS

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1937 High	1937 Low	Week ending Oct. 2 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1936	1936 High	1936 Low	1935 High	1935 Low
114⅞	67½	2,700	75	68	75	Amerada Corp.	788,675	N.P.	50cQ	7-31-37	$2.00	125½	75	80	48½
37	22½	14,300	25	22½	23¾	Atlantic Refining	2,664,000	$25	25cQ	9-15-37	1.25	35⅛	26⅝	28	20½
43⅜	17⅝	9,200	21⅛	18	21	Barber Co.	387.149	$10	25c.	6-1-37	.50	38½	21	22½	11¾
35¼	16⅞	17,800	18¾	17⅛	18	Barnsdall Oil Co.	2,247,974	$5	25cQ	11-1-37	.80	28¼	14⅛	14¾	5⅞
20⅞	8¾	44,800	10	8¾	9⅞	Columbia Gas & Elec.	11,610,036	N.P.	20c	5-15-37	.40	23⅜	14	15¾	3⅜
17⅞	11⅛	42,200	12⅝	11⅛	12⅛	Consolidated Oil Corp.	13,919.417	N.P.	20cQ	11-15-37	.80	17¼	11½	12¼	6½
49	36	16,100	38¾	36	38	Continental Oil of Delaware	4,682,615	$5	50cQ†	9-30-37	1.50	44⅞	28⅛	35	15⅛
17⅝	8½	21,400	10¼	8½	10	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	13⅞	6⅜	7	1½
35⅜	21	9,400	24⅜	22½	23	Mid-Continent Petroleum	1,855,912	$10	50cSA	6-15-37	1.15	30⅞	17¼	20½	9½
34	18¼	1,700	21½	18¼	21½	Mission Corporation	1,399,345	N.P.	1.00	6-15-37	.45	29⅞	16¾	17¾	10⅜
41⅜	24	16,300	31⅞	26½	30½	National Supply of Delaware	382.591	$25	....	5-15-31	....	75½	19⅞	20⅞	9
22⅞	14⅛	19,000	15⅜	14⅛	15¼	Ohio Oil Co.	6,563,377	N.P.	50cSA	6-15-37	.60	18	12⅛	14¼	9¼
29¾	16	3,000	19½	16	19½	Pacific Western Oil	1,000,000	N.P.	65c	12-18-36	.65	23½	11¾	14	6¾
4½	1¼	1,500	1¾	1¼	1½	Panhandle P. & R.	198,770	N.P.	....	....	....	4¼	1⅜	1⅞	½
64	45	19,700	51½	45	50	Phillips Petroleum	4,449,052	N.P.	75cQ†	9-1-37	2.50	52⅜	38⅛	40	13¾
29⅞	18	7,200	20½	18	20½	Plymouth Oil Co.	1,050,000	$5	35cQ	9-30-37	.90	27¾	11⅞	13	6½
24⅜	14¼	45,800	16⅜	14¼	15⅝	Pure Oil Co.	3,281,120	N.P.	....	9-1-30	....	24⅞	16	17	5⅞
54½	26¼	3,100	30½	28	30½	Seaboard Oil of Delaware	1,224,283	N.P.	25cQ	9-15-37	1.00	44	30½	36⅞	20¾
34⅜	19½	7,100	22	20	20½	Shell Union Oil	13,070,625	N.P.	50c	7-15-37	.25	28¼	14¾	16½	5½
105⅜	102	200	103	103	103	Shell Union Oil 5½% pfd.	343,500	$100	$1.37½Q	10-1-37	28.87½	127½	102	111	63⅛
4¼	3	600	3⅛	3⅛	3⅛	Simms Petroleum	461,698	$10	50c liq.	8-3-37	2.25 liq.	6¾	3½	18¾	4¾
60⅝	34¾	5,800	41	36	41	Skelly Oil	1,006,348	$15	50c	9-30-37	....	47⅝	19½	20½	6½
23¼	16¼	82,400	19¼	17⅛	18⅝	Socony-Vacuum	31,151,071	$15	25cSA	9-15-37	.70	17½	12½	15⅜	10⅝
50	36⅛	18,300	37⅞	36⅛	36⅛	Standard Oil of California	13,014,754	N.P.	45cQ†	9-15-37	1.20	47⅝	35	41⅛	27¾
50	36⅝	17,400	40¼	36⅝	40¼	Standard Oil (Indiana)	15,196,241	$25	50cQ†	9-15-37	2.40	48½	32¾	33⅜	23
36½	30⅝	400	35	35	35	Standard Oil of Kansas	134,841	$10	$1	12-26-36	1.00	31	25	32	20
76	52¾	39,300	57⅜	52¾	57¼	Standard Oil of New Jersey	25,856,081	$25	$1.25SA†	6-15-37	2.00	70⅜	51⅛	52⅜	35¾
77½	62¾	400	63	62¾	62¾	Sun Oil	2,156,825	N.P.	25cQ	9-15-37	$1 & 6% Sk.	91	70	77	60½
65⅛	44⅝	54,100	51¾	44⅝	51⅜	Texas Corp.	10,896,858	$25	50cQ	10-1-37	1.50	55¼	28⅞	30¼	16½
9⅝	4¼	11,400	5	4¼	4⅜	Texas Gulf Producing Co.	888,132	N.P.	5c	12-15-36	.05	8⅞	4⅜	4¾	2½
16⅝	9⅝	11,300	11⅝	10	10	Texas Pacific Coal & Oil	888,237	$10	10c	9-1-37	.25	15¼	7½	9¼	3¼
21⅝	15⅜	12,800	17½	16⅛	17⅛	Tide Water Associated	6,288,512	N.P.	35cQ†	9-1-37	.70	21¾	14⅜	15⅞	7⅝
28¼	20	7,800	21¾	20	21¼	Union Oil of California	4,386,070	$25	30cQ	8-10-37	1.00	28½	20¾	24	14¾
31½	24⅜	1,100	25	24⅜	24¾	Union Tank Car Co.	1,200,000	N.P.	40cQ	9-1-37	1.20	31⅝	22⅝	26½	20⅞
6¼	2¾	400	3	2⅞	3	Wilcox Oil & Gas	424,839	$5	....	5-10-28	...	5¼	2¾	3⅛	1

*Ex-dividend. †Includes extras.

New York Curb Exchange

1937 High	1937 Low	Week ending Oct. 2 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1936	1936 High	1936 Low	1935 High	1935 Low
21⅜	11⅝	2,000	13⅛	12½	12⅞	Bridgeport Machine Co.	260,000	N.P.	25c	9-30-37	$1.00	21	13¼	14⅛	3¾
51½	45	300	46	45	46	Buckeye Pipe Line Co.	200,000	$50	$1Q	9-15-37	3.25	50	39¾	42½	30½
2¾	1	13,800	1⅜	1	1⅜	Carib Syndicate	799,020	25c	....	.....	....	4⅞	1⅞	4¼	1⅝
123	100	150	101¼	100	101¼	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	9-30-37	7.00	124¾	105	157	115
5⅜	2⅛	61,600	2⅝	2⅛	2⅜	Cities Service	37,804,394	N.P.	....	6-1-32	....	7⅜	3	3¼	⅝
5½	2⅝	5,800	3¾	2⅞	3⅝	Cosden Petroleum	399,687	$1	....	.....	....	4½	1½	1½	¼
38¾	23	8,100	28½	23⅜	27	Creole Petroleum	6.974,356	$5	50cSA†	6-10-37	.50	39	19⅞	23¾	10
18⅝	9⅛	1,100	10	9⅛	9⅞	Darby Petroleum	351,390	$5	25cSA	1-15-38	.50	18⅛	9	8⅞	4
8⅜	4⅝	2,200	5¼	4¾	5	Derby Oil & Refining	263,162	N.P.	....	....	....	6¾	1⅞	2	⅝
47½	29	50	30	30	30	Eureka Pipe Line	50,000	$50	$1Q	11-1-37	4.00	47½	38½	38	33¼
63½	42¼	14,200	46½	42¼	45½	Gulf Oil Corp.	9,076,202	$25	25cQ	10-1-37	1.50, 100% Stk.	59	36	74¾	50¼
87	67⅝	6,300	71	67⅝	70⅛	Humble Oil & Refining	8,923.935	N.P.	62½cQ	10-1-37	1.50	80	57	64	44
24¼	18¼	6,500	19⅞	18⅝	19½	Imperial Oil of Canada	26.919,871	N.P.	62½cSA†‡	6-1-37	1.25	24½	19¾	22½	15⅝
15	7¾	400	9	8	9	Indiana Pipe Line	300,000	$10	50cSA	11-15-37	.80	9¾	5½	6⅛	3⅝
39½	29¾	8,700	32⅜	30⅜	31½	International Petroleum	14,247,088	N.P.	$1.25†‡	6-1-37	2.50	39⅝	32⅝	39¾	28
15¼	8¼	12,000	10	8¾	9⅜	Louisiana Land & Exp.	3,000,000	N.P.	10cQ	9-15-37	.50	15⅜	9⅞	11⅜	4⅜
34	16⅛	3,400	24	20¾	23⅜	Lion Oil Refining	270,000	N.P.	25cQ	10-20-37	.75	17¾	7⅜	8⅛	3½
14¼	8½	5,500	9½	8⅝	9½	Lone Star Gas	5,382,723	N.P.	20c	8-21-37	.60	14¼	9⅞	10⅞	4½
14⅝	8⅛	1,300	8½	8⅛	8⅛	Midwest Oil Co.	998,444	$10	50c	6-15-37	....	..	..	..	..
7⅞	5⅛	2,700	5⅜	5⅛	5½	Mountain Producers	1,682,182	$10	30cSA	6-15-37	.60	8⅜	5	5¾	4⅛
19½	13¾	900	14⅛	13¾	14	National Fuel Gas	3,810,183	N.P.	25cQ	10-15-37	1.00	23	17⅜	20	11¾
12½	8	1,100	9	8⅝	9	National Transit	509.000	$12.50	45cSA	6-15-37	.75	15¾	9¼	10⅝	6¾
6⅛	4¼	No sales	..	..	..	New Bradford Oil	1,445,202	$5	18c	9-17-37	.10	4⅝	2⅞	3¼	2
5	1⅝	5,300	1⅞	1⅝	1⅞	New Mexico and Arizona	1.000,000	$1	1c	12-1-36	.01	6⅝	1⅝	2½	1
5⅜	4¼	300	4½	4¼	4½	New York Transit	100,000	$5	25cSA	10-15-37	.35	6¼	4¼	4⅞	3
12¾	7½	300	7¾	7½	7½	Northern Pipe Line	120,000	$10	40c	6-1-37	.40	9¾	4⅞	8	5¼
9⅝	5	24,000	6⅛	5	5¾	Pantepec Oil	1,608,700	N.P.	....	.....	....	10⅛	3¼	4⅜	1¼
13¾	4⅛	2,000	4⅝	4⅛	4½	Root Petroleum Co.	336,045	$1	25c	2-1-37	.50	19¼	4½	5	1½
6½	3¼	500	3⅝	3⅜	3⅝	Ryan Consolidated	296,931	N.P.	....	.....	....	4¾	1⅞	2½	⅝
56	41	1,200	42½	41	42½	South Penn Oil	1,000,000	$25	$1.15Q†	9-30-37	2.60	44	32½	34½	21⅝
7¼	4⅞	No sales	..	..	..	Southern Pipe Line	100,000	$10	25cSA	9-1-37	.25	7⅞	3¼	5	3⅞
42	26	No sales	..	..	..	South West Penna. Pipe Lines	35,000	$50	50cQ	10-1-37	13.00	60	44	56	44¼
21⅛	18⅛	1,700	18¾	18⅛	18½	Standard Oil of Kentucky	2,604,790	$10	40cQ†	9-15-37	1.35	23⅜	17⅛	24	18
13¾	8⅛	100	8⅛	8⅛	8⅛	Standard Oil of Nebraska	188,403	$25	25c	3-29-37	.25	14⅝	11	12	7⅜
45	27	1,000	29¾	27	29½	Standard Oil of Ohio	753,740	$25	25cQ	9-15-37	2.00	40	21¾	23⅝	11½
4⅞	3¼	8,500	3½	3¼	3¼	Sunray Oil	1,910,119	$1	10c	8-20-37	.10	5	2⅝	2⅞	⅞
7⅝	4¼	900	4¾	4¼	4¾	Texon Oil & Land	336,028	$2	15cQ	9-3-37	.60	9¾	5⅜	6⅞	5

*Ex-dividend. †Includes extras. ‡Payable in Canadian funds.

Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

Oil Man's Calendar

October

7-9—Los Angeles, Calif., S.A.E. National Aircraft Production Meeting, Ambassador Hotel.

11-15—Kansas City, Mo., Twenty-sixth National Safety Congress and Exposition.

11-16—Houston, Tex., Oil-World Exposition.

12-14—Chicago, Ill., National Oil Marketers Association Convention, Stevens Hotel.

14-16—Pittsburgh, Pa., mid-year meeting, American Association of Petroleum Geologists, William Penn Hotel.

14-15—Houston, Tex., Interstate Oil Compact Commission, Rice Hotel.

14-16—Houston, Tex., Independent Petroleum Association of America, annual meeting.

18-22—Atlantic City, N. J., American Welding Society, Eighteenth Annual Meeting and Welding Exposition.

26—Shreveport, La., Louisiana-Arkansas division. Mid-Continent Oil and Gas Association, membership meeting Slattery, Building.

27-28—Indianapolis, Ind., Indiana Independent Petroleum Association, Annual Fall Convention, Hotel Severin.

28—New York, S.A.E. Annual Dinner, Commodore Hotel.

29-30—Dallas, Tex., Mid-Continent Oil and Gas Association of Texas, annual meeting.

November

8-12—Chicago, American Petroleum Institute, Eighteenth Annual meeting, Stevens Hotel.

16—New York, Oil Trades Association of New York.

19—Tulsa, Mid-Continent Oil and Gas Association membership meeting, Tulsa Club.

December

14—Tulsa, annual meeting of directors of Mid-Continent Oil and Gas Association.

1938—March

16-8—New Orleans, twenty-third annual meeting, American Association of Petroleum Geologists, Roosevelt Hotel.

CLASSIFIED ADVERTISING

Leases and Drilling Blocks

NEW Texas Oil and Gas Leases. Large or small tracts for brokers and salesmen. State requirements. H. H. WHITE, P.O. Box 674, San Antonio, Texas.

WANT BROKER to handle commercial leases near deep test. Good geological location South Texas. Owner, Box 149, Belton, Texas.

SECURITY ABSTRACT COMPANY
El Dorado, Arkansas
Fee, Lease & Mineral Ownership
on short notice. Ownership maps.

ILLINOIS

A complete weekly report on Illinois operations.
One month.....$5.00
Six months.....$25.00
Sample report on request.
OIL NEWS SERVICE
P. O. Box 148 Flora, Illinois

LEASES-ROYALTIES near Paluxy-Trinity sand test East Texas offer chance for quick money. E. CROFT, PROCTOR, TEX.

ARKANSAS
Does not have any production (proration) restrictions. The opportunity for quick "payouts" is obvious. Come here and investigate royalty and lease opportunities
WILLIAM MONROE LAYTON
P. O. Box 411 Texarkana, Ark

CAN FIND any oil structure that will produce when penetrated. P. O. Box 308, Tonkawa, Oklahoma.

320 A. PROVEN GAS. ⅞ working interest. Unlimited 8-cent market. I complete one well and assign all for $1,500.00. H. B. Buddenborg, Osawatomie, Kans.

HAVE 17,000-acre block that is believed over subsurface structure but will take geophysical survey to determine. Will make any reasonable deal with responsible party to develop. Address W. M. PRATHER, Oakley, Kansas.

New Mexico OIL LEASES WHOLESALE
40 acres at a time.
Roy G. Barton, Clovis, New Mexico.

FOR SALE—A bargain if bought at once. Three small producing wells in 20-26-15, Nowata County. West Oil Co., Shawnee, Ok.

FOR SALE or exchange—Producing and distributing natural gas properties in western Missouri and eastern Kansas. Fine condition. Great development possibilities. Exchange for producing oil wells acceptable. LOUIS C. CYR, 45 Melrose St., Lawrence, Massachusetts.

Specializing leases twenty acres up dollar acre, East Tex., La., S. Ark. Owners—Attorney, Box 1122, Little Rock, Arkansas

WEST TEXAS Permian and Delaware Basin oil leases at $1.00 and $2.50 per acre, also Jones, Fisher and Taylor county leases at low prices. MIESSE, P. O. Box 1152, Abilene, Texas.

ILLINOIS
OIL LEASES
Blocks 2700 acres and 8000 acres also single leases various counties on structure, direct from landowners to me. 5 years, year free, rentals 10c and 25c per acre. No rentals due propositions negotiated. R. O. ZEPPENFELD, 519 International Life Bldg., St. Louis, Missouri.

WANT TO SELL $500,000 worth of oil payments to drill six wells on W½ of SE¼, Sec. 1-20-28 Miller county, Arkansas. Big production within half mile. W. B. WORTHEN, Box 163, phone No. 27, Atlanta, Texas.

Leases and Drilling Blocks

FOR SALE Oil producing leases with many locations yet to drill, leases for sale near production and wildcat leases for drilling contracts.
W. P. HARLEY
Bowling Green, Ky.

HAVE MARKET for best production and oil properties in Kansas and elsewhere. Data, etc. Terms. Must stand investigation. Also best crude oil deal. Address Box H-975, The Oil and Gas Journal, Tulsa, Okla.

OWNER wishes to lease in Montana 320 A. E½ 29-35-13 Hill county and 160 A. NE¼, 24-33-4 Toole county, also 140 A. White county, Ill.
S. HOMAN
7205 Exchange Ave., Chicago.

HAVE structure 10,000 acres leases New Mexico, best geology, location, test well partly drilled, fully equipped machinery, casing. Account death partner must arrange deal. Will sell entire or part. C. H. Radford, Box 614, Pueblo, Colorado.

FOR SALE, leased drilling blocks in Colorado, Nebraska and Kansas, reasonable. Address Box H-980, The Oil and Gas Journal, Tulsa, Oklahoma.

Royalties

CONNECTION
WANTED in the oil industry with capital or responsible company as authorized representative, or in scouting for your Royalties or Leases. Living in Central Kansas. Dependable and integrity above reproach. References. Address Box H-976, The Oil and Gas Journal, Tulsa, Okla.

Oil Royalties and Leases Illinois Basin.
Write
Sam B. Raitman, Olney, Ill.
226½ Main St. P. O. Box 229

119 million ft. gasser in Sec. 10-9-25, Beckham County, Okla. Royalties within 1½ miles and closer to well. $50 per acre and up. Also choice leases. J. N. SWANSON, Sayre, Oklahoma.

Royalties

Brokers—Salesmen

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo.

PRODUCING OIL ROYALTIES
15 years of experience.
L. H. WITWER
214 Kennedy Bldg., Tulsa, Okla.

ROYALTIES PURCHASING TRUST, LTD., Moorgate Hall, Moorgate London, E. C. 2., England, are buyers of producing oil royalties.

DEEDED—N.W. Oklahoma oil royalties and leases, near drilling wells or hot spots. I will make U $. Small commission. ENID OIL ROYALTY CO., Enid, Oklahoma.

FOR SALE—Royalty under and around well SW¼, 26-27-22 Ford County, Kansas. Also blocks and leases. Geo. Rickard, Bucklin, Kansas.

Royalties

Oil Royalties and Oil and Gas Leases
Bought and Sold
E. T. Marion
1109 Petroleum Building
Midland, Texas.

WANTED—A large and widely scattered spread of producing royalty. Also 10 to 20 acres royalty near several wells drilling on geophysical structure, by responsible operators. Cash ready quick action. Leonard Jones, 4172 Leimert Blvd., Los Angeles, Calif.

ROYALTY RECORD. Complete description of property, history of lease, plat, title record, rental record, mortgage record, expenditure record, sales record, tax record, well records and production record—all on one sheet. Printed on good ledger paper, size 11" by 8½", punched for standard ring binder. Price per 100 sheets, $5.00; leather ring binder, $4.00; imitation leather ring binder, $2.30; leather tabbed index to fit, $1.00. Order this indispensable record to-day.

THE STECK COMPANY
217 W. 9th St., Austin, Texas

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

F. A. SANSOME
Maintains a Complete Trading Organization for Brokers, Banks and Dealers
In
Oil Royalties.
522 Fifth Avenue, New York, N. Y.

NEW MEXICO Oil and Gas Leases and royalties. Send 50 cents in stamps for new State Oil Map of New Mexico. Roy G. Barton, Clovis, New Mexico.

Business Opportunities

FOR SALE—Silver and gold mine in Arizona, 300 ft. shaft newly timbered. Complete equipment for operation. Over $30,000 spent developing and prospecting. Assays run from $4.00 to over $100.00 per ton. Core drill has located good bodies of ore running from $4.00 to $9.00 per ton. Replies solicited from parties only who are able to buy or finance. Box 1098, Shawnee, Oklahoma.

Financing

CAPITAL raised for development of Oil and Mining properties. Delaware Charters. J. B. Murrow, 299 Broadway, New York.

OIL AND GAS FINANCING WANTED
for development of tested fields. Drilled four wells all producing on 1,500 acres controlled leases.
Box H-946, The Oil and Gas Journal, Tulsa, Okla.

CAPITAL SEEKERS—Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building, Detroit, Michigan.

WANTED—Form contact with reliable underwriter or broker with established clientele, capable underwriting substantial spread acreage at wildcat prices, sufficient to pay for drilling first well on Texas and Louisiana assembled drilling blocks. Acceptable references. OIL DEVELOPER, Drawer 1135, Dallas, Texas.

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes.

1 Inch	*1 time*	*$5.00*
1 Inch	*13 times*	*4.50 per inch*
1 Inch	*26 times*	*4.00 per inch*
1 Inch	*52 times*	*3.50 per inch*

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

CLASSIFIED

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	*$1.05*	*$1.80*	*$2.55*	*$3.30*	*7 Lines*	*$2.45*	*$4.20*	*$5.95*	*$7.70*
4 Lines	*1.40*	*2.40*	*3.40*	*4.40*	*8 Lines*	*2.80*	*4.80*	*6.80*	*8.80*
5 Lines	*1.75*	*3.00*	*4.25*	*5.50*	*9 Lines*	*3.15*	*5.40*	*7.65*	*9.90*
6 Lines	*2.10*	*3.60*	*5.10*	*6.60*	*10 Lines*	*3.50*	*6.00*	*8.50*	*11.00*

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma